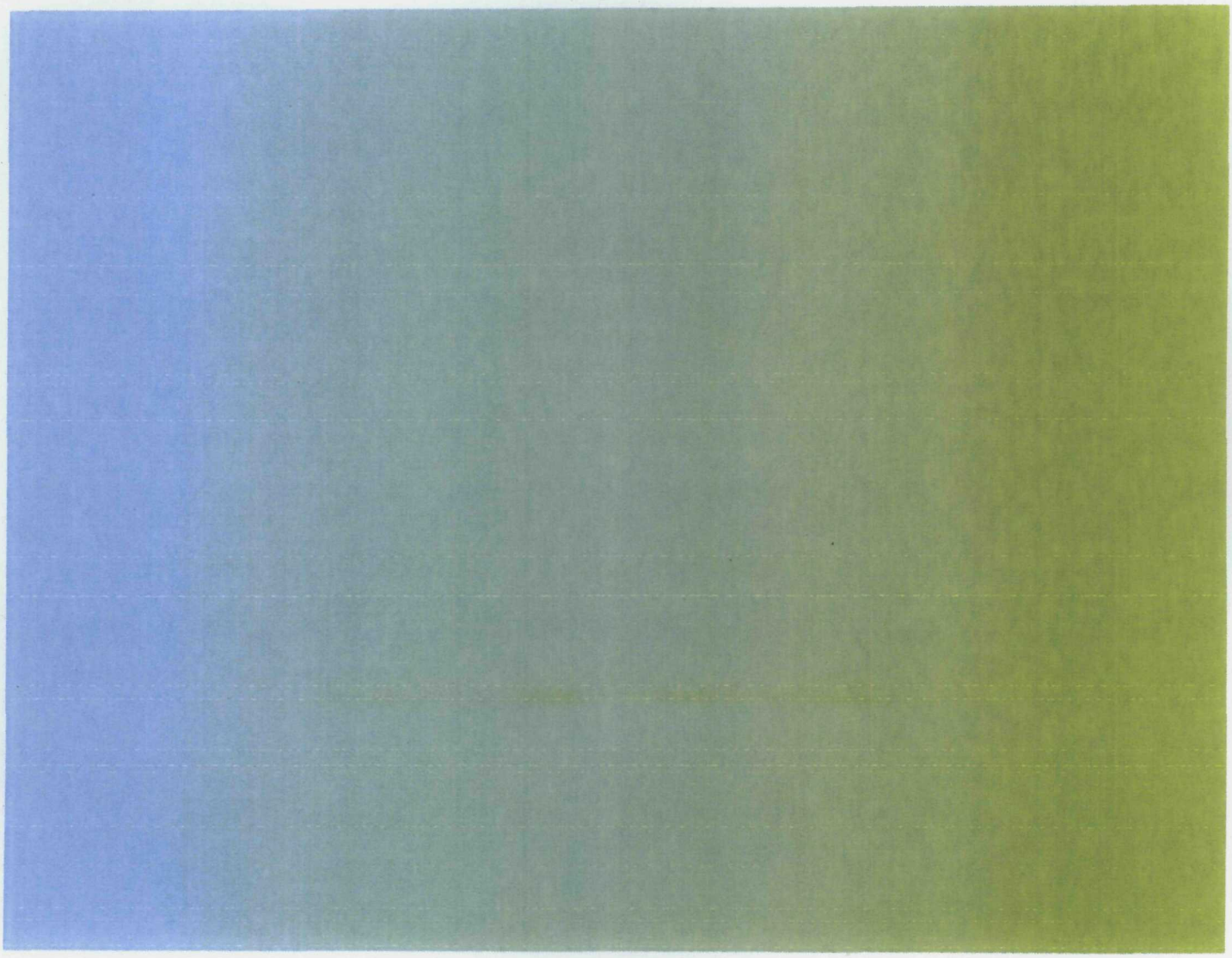
AECOM

Submitted to:
US Environmental Protection Agency
Chicago, IL

Submitted by:
AECOM
Chicago, IL
60181303
September 2011

Completion Report

211 E. Grand Avenue
Chicago, Illinois



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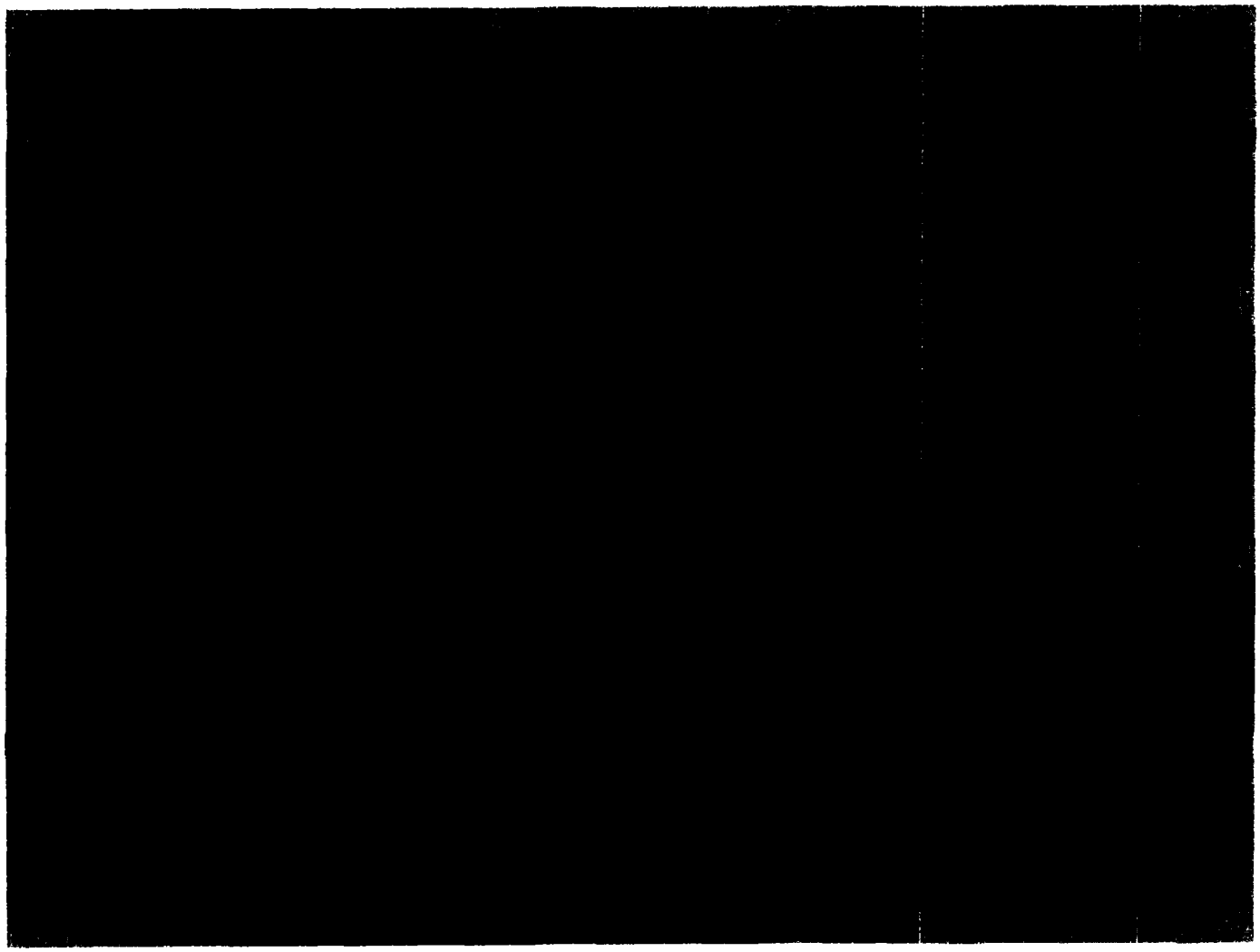

AECOM
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847.279 2500 tel
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September 15, 2011

Ms. Verneta Simon
US Environmental Protection Agency – Region 5
77 W. Jackson Blvd., SE-5J
Chicago, Illinois 60604-3590

Subject: Completion Report for Ronald McDonald House Charities of Chicagoland and Northwest Indiana, 211 E. Grand Avenue, Chicago, Illinois, AECOM, Inc. Project No. 60157402

Dear Ms. Simon:

The enclosed report contains the finalized Completion Report for the removal of radiologically contaminated fill soil completed by AECOM at the above referenced property. Should you have any questions, please contact us at 847-279-2500.

Regards,

Brian R. Schmidt
Project Scientist II

Steve C. Kornder, Ph. D.
Senior Geochemist

AFFIDAVIT

Under penalty of law, I certify that, to the best of my knowledge, after appropriate inquiries of all relevant persons involved in the preparation of this report, the information submitted is true, accurate, and complete.

Steven C. Kornder, Ph.D.
Project Manager

Date: 9/15/11

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1.0 Introduction

This Completion Report was developed to document the gamma surveying and removal of radiologically contaminated fill soil from the 211 E. Grand Ave. Site. The Site was formerly occupied by a 4-story brick building with a basement and a small adjoining 2-story brick building. The Site was surveyed for radiological impacts and remediated as part of the redevelopment and construction of a commercial high rise tower. The new structure is a 14-story Ronald McDonald House. It is a cast-in-place poured concrete structure without a basement. The hotel type building will be 198-feet in height and was designed to be supported on caissons.

The work documented in this Completion Report was conducted in general accordance with the procedures outlined in the Work Plan for Remediation of Radiologically-Impacted Fill Soil at 211 E. Grand Ave. (Work Plan) prepared by AECOM dated December 10, 2010, and approved by the USEPA in correspondence dated December 10, 2010. A copy of the United States Environmental Protection Agency (USEPA) approval letter and the Administrative Settlement and Order on Consent for Removal Action (Docket No. V-W-10-C-960) are included in Appendix A.

AECOM, on behalf of the Ronald McDonald House Charities of Chicagoland and Northwest Indiana, requests the USEPA approve the Completion Report and issue a Notice of Completion for the 211 E. Grand Ave. Site, confirming that (a) all identified radiologically contaminated materials with levels of radioactivity in excess of the cleanup threshold standards set forth in the Work Plan have been removed from the site as required by the Work Plan and (b) that no further removal or cleanup action is required at this time with respect to the radiologically contaminated materials on the 211 E. Grand Ave. Site. Since, AECOM, on behalf of Ronald McDonald House Charities, did not screen the entirety of the fill materials at the Site in 18-inch lifts, Ronald McDonald House Charities will record an Environmental Covenant against the title to ensure that any and all future intrusion into the unscreened fill material will be conducted with appropriate radiological screening.

2.0 Background

2.1 Site Location

The Site is about 75-feet wide and 100-feet deep or approximately 0.17 acres. It is bounded by East Grand Avenue on the north, a public alley on the south and brick and/or concrete block buildings immediately adjacent to the eastern and western property lines (refer to Figure 1). The Site is located in an area of reclaimed land where fill soil material was placed along the Lake Michigan shoreline starting in the 1860's. This area of Chicago is commonly referred to as Streeterville. Redevelopment of several properties north of the Chicago River in the Streeterville neighborhood of Chicago, Illinois have been found to exhibit evidence of radiological-impacts from the former processing of thorium-bearing mineral sands by Lindsay Light and Chemical Company (Lindsay Light).

The radiologically contaminated fill soil was originally generated as a byproduct from a former gas mantle production that used thorium nitrate in its manufacturing process. Lindsay Light facilities operated in Streeterville at 22 West Hubbard, 316 East Illinois, and 161 East Grand. The radiologically contaminated fill material was generated during the production of gas mantles, which used thorium in its manufacturing process. These manufacturing operations were conducted from the early 1900s through the early 1930s. The radiological impacts consist of elevated concentrations of thorium and their radioactive decay related daughter products in the near surface fill soils in the vicinity of the former Lindsay Light site.

Due to the proximity of this property to the manufacturing sites and documented cleanups at other properties in the Streeterville area the USEPA, which has oversight authority for radiologically contaminated sites, requires that radiological surveys be completed prior to and during site development within the moratorium area commonly referred to as the Streeterville thorium investigation area.

2.2 Site History

Prior to the demolition activities completed in April 2010, the Site was occupied by a four story commercial brick building with a full basement. The building was situated in a north-south orientation and abutted the southern, northern and western property lines, and was approximately 52-feet wide by 100-feet deep. This structure was likely built in 1887 according to the Phase I completed in March of 2008 by Gabriel Environmental Services. As such, the building was built approximately 15 years prior to the founding of the Lindsay Light Company in Streeterville.

Additionally, a small two story brick building occupied the southeast corner of the Site. This structure was approximately 24-feet wide and 40-feet deep and abutted the alley to the south as well as the eastern property line. This structure reportedly did not have a basement. North of this two story building was a paved loading dock driveway approximately 24-feet wide and 60-feet deep that was accessed from East Grand Ave. Thus, the eastern one-third of the Site, which measures 24 feet by 100 feet, appears to have been previously unexcavated.

2.3 Radiological Survey Results

2.3.1 Initial Walk-Over Survey

On November 11, 2009 the USEPA conducted a walk-over radiation survey of the Site including the loading dock area and basement, which included four test pits that had been installed to obtain structural information. Results from the survey were summarized in correspondence from the USEPA dated November 16, 2009 (refer to the Radiological Survey Report in Appendix B). According to the USEPA, the results did not indicate the potential presence of radiologically contaminated fill materials in either the alley or the basement.

2.3.2 Down-hole and Test Pit Survey Results

The down-hole radiological scope originally included the screening of three (3) geotechnical borings and installing four (4) shallow (about 5-foot deep) borings south of the Site within the public alley. AECOM personnel were responsible for the survey results collected during geotechnical drilling. Two of the three geotechnical borings were located within the boundary of the former basement, which had been filled with debris (brick and concrete) from the demolition of the building. The primary purpose of the borings in the alley was to determine if radiologically contaminated fill soil was present per the request of the USEPA.

In July 2010, the three geotechnical borings were installed, but the borings in the alley could not be completed due to the presence of underground utilities. Two of the alley borings were moved north and completed just inside the property line. However, the two remaining borings were not completed since the primary intent was to assess fill soil presence in the alley and moving them just inside the property on the edge of the alley would limit their ability to assess the alley fill material. The down-hole radiation surveys for the three geotechnical soil borings were conducted between August 24 and September 3, 2010. All borings were drilled with a nominal 4.25-inch diameter hollow stem auger. A 3-inch diameter Schedule 40 PVC casing was installed in each hole, and gamma readings were taken in 6-inch increments extending to the native soil. The gamma logging was conducted with a Ludlum 2221 rater-scaler and a 2 x 2 NaI probe. The probe was equipped with a 1-inch thick lead end cap at the lower end of the probe to maximize the lateral sensitivity of the probe and minimize the influence of deeper material on the gamma readings.

Screening of the spoil generated during the boring process and the down-hole monitoring revealed no indication of soils above the specified clean-up threshold established by the USEPA for the Streeterville area of Chicago.

Table 1 of the report in Appendix B presents a summary of the down-hole gamma readings observed for each boring during the survey. The down-hole results of the two borings completed within the demolition debris were well below the USEPA cleanup threshold as were the results at the base of the former basement slab.

The only anomalous readings observed were at the boring located within the former loading dock driveway. The readings at 1.5 to 3.5 feet below the ground surface were slightly elevated and the reading observed at 2.5-feet (15,379 counts/30-seconds) exceeded the instrumentation threshold value of 12,479 counts/30-seconds based on the USEPA cleanup value of 7.1 pCi/g total radium. This boring was located in the former loading dock driveway on the eastern one-third of the Site which did not appear to have been previously excavated. This unexcavated area measured 24 feet by 100 feet and was occupied by loading dock driveway and 2-story brick building without a basement.
A plan to visually examine the materials contributing to the elevated gamma reading was coordinated with a test pit effort to observe the foundations of the adjacent structures on September 16, 2010. The

initial test pit was located about 10-15 feet south of the East Grand Avenue sidewalk. Initial surface gamma readings ranged from 14,000 to 16,000 counts per minute (cpm), which is below the unshielded Ludlum threshold value of 17,522 cpm that is equivalent to the USEPA cleanup value of 7.1 pCi/g total radium. As excavation proceeded, the gamma reading increased to about 17,000 cpm at a depth of about 2-feet, but did not exceed the USEPA cleanup threshold. Excavation continued in this area until a depth of about 2.5-feet with gamma readings typically in the 15,000 to 17,000 cpm range.

The higher readings appeared to be occurring toward the southern edge of the test pit. Therefore, the test pit was extended approximately 10-feet farther south. In this southern section of the test pit, the readings ranged from 19,000 to 21,000 cpm at a depth of about 18-inches. However, fill material removed from the test pit remained below the USEPA cleanup threshold. When it appeared that material above the USEPA cleanup threshold was present at the base of the test pit, excavation activities were halted to avoid the excavation of impacted material and the test pit was backfilled. This test pit was included within the area subsequently remediated.

Two geotechnical test pits along the eastern property boundary were completed to observe the foundations of the buildings for foundation design purposes. The first test pit (geotech #1) was dug approximately 35-feet south of the East Grand Avenue sidewalk, while the second was about 65-feet south of the sidewalk. The maximum gamma reading observed in the two these two test pits was 14,300 cpm. Thus, there was no indication of radiologically contaminated fill present along the eastern boundary.

Surface screening completed on September 16, 2010 indicated that the area of elevated readings above background was present along the western edge of the former driveway near the former building foundation. The surface reading in the western section ranged from 15,400 to 20,700 cpm with a maximum of 52,000 cpm about 41 feet south of the sidewalk and 17 feet west of the eastern property boundary. Hand excavation of a small area to a depth of about 1-foot at the highest surface reading indicated a maximum of 106,000 cpm versus the instrument threshold of 17,522 cpm. A sample was collected of the soil fill material that exhibited the highest surface gamma readings. The gamma spectroscopy results indicated a total radium (Ra-226 and Ra-228) activity of 44 pCi/g with the Ra-228 isotope activity of 39.5 pCi/g. A copy of the laboratory report is included in Appendix C. Thus, the elevated surface gamma readings and analytical results from the western side of the former loading dock driveway appeared indicative of soil and/or fill impacted with Lindsay Light thorium material.

2.3.3 Alley Surface Survey

A surface survey of the northern half of the alley was completed on September 16, 2010. The alley south of the site is currently asphalt paved. As indicated previously, the down-hole survey within the alley could not be surveyed because of buried utilities. Three surface screening passes each approximately a meter wide were conducted to cover the northern half of the alley immediately adjacent to the site. The surface gamma readings typically ranged from 7,200 to 9,600 cpm. The maximum value observed was 11,500 cpm versus the instrument threshold of 17,522 cpm base on the USEPA cleanup limit of 7.1 pCi/g total radium. The maximum gamma reading occurred at the centerline of the alley approximately 10-feet west of a line projected along the eastern property boundary. In any case, no indications of elevated gamma readings were observed, but these results must be viewed with caution since shielding due to the presence of pavement limits the ability of the field instrumentation to detect impacted material.

3.0 Radiological Surveying and Removal Activities

Field activities included the removal of the radiologically contaminated fill identified in the surface and down-hole survey phase as well as surveying of construction related work. Specifically, this included test pitting for the sheet-pile wall, screening caisson spoils and surveying the installation of utilities. The remaining sections of this report document the radiological surveying activities and the removal actions conducted as generally outlined in the Work Plan (AECOM, Dec. 2010). The Work Plan and construction related activities covered by this report were performed between December 17, 2010 and April 13, 2011.

3.1 Site Work Documented Through Monthly Progress Reports

The work completed in the course of this report was documented through monthly progress reports submitted to USEPA. These progress reports described the work completed each month, and described the work planned for the upcoming month. The soil analyses for the verification samples were submitted with the request for USEPA sign-off of successful remediation and therefore were not included with the monthly progress reports. The monthly reports are on file with USEPA and are not included as an attachment in this Completion Report.

3.2 Removal Procedures for Radiologically Contaminated Fill Soils

3.2.1 USEPA Cleanup Level

The cleanup limit established for Chicago's Streeterville area by USEPA is 5 pCi/g of total radium (Ra-226 + Ra-228) above the background radium activity. The background total radium activity for the area is specified by USEPA as 2.1 pCi/g. Thus, the cleanup threshold for the Site was established at 7.1 pCi/g total radium.

3.2.2 Safety Training and Communications

Site and project specific radiation and health and safety training was provided to the on-site personnel prior to the start of remediation work on the Site. Training included discussion of radiation basics, anticipated hazards, equipment to be worn, safety practices to be followed, contamination prevention practices, and emergency procedures as well as a discussion of the site-specific HASP. Training was conducted by project manager Steve Kornder (AECOM) and health physicist Glenn Huber (Stan A. Huber Consultants, Inc. - SAHCI). A copy of the training attendance sheet is included in Appendix J.

3.2.3 Remedial Actions

The excavation of the radiologically contaminated fill soil was initiated on December 17, 2010. Remediation activities consisted exclusively of the excavation of radiologically contaminated fill soil in the northeast corner of the Site (former loading dock driveway area). Figure 2 shows the boundaries of the remediation activities conducted for the only area of contaminated fill soil that has been identified at the Site. The only individual to work in the exclusion zone was the health physicist Glenn Huber (SAHCI). The excavator, with the exception of the bucket, and the remainder of the personnel were kept outside of the exclusion zone.

Radiologically contaminated soils were placed directly into super-sacks with approximately a 1 cubic yard volume. The initial excavation of radiologically contaminated fill soil occurred in the northeast corner of the Site in the vicinity of boring SB-10 (refer to Appendix B). Excavation suggested that the impacted fill soils were thickest (reaching a depth of about 5 feet) near the western edge of the former loading dock driveway and near the existing eastern foundation wall of the former 4-story building. It appeared that the radiologically contaminated fill soil may have been associated with backfill for a poured concrete foundation that supported stairs to the former loading dock.

At the end of each work day, the exposed excavation was fenced-off and the appropriate radiological placards were applied to the fencing in accordance with proper USEPA and Work Plan protocol. The super-sacks were tied and placed at a designated staging area onsite to await removal to the designated waste facility. The last super-sack of radiologically contaminated fill soil was excavated on December 22, 2010.

A total of 57 super-sacks of impacted material were loaded during this removal action. NUTRANL analyses for each super-sack were conducted for manifesting purposes and are provided in Appendix C. The NUTRANL results for the individual super-sacks averaged 46.6 pCi/g total radium with a maximum activity of 848 pCi/g total radium. Soils removed consisted of brown-black fill soils with small amounts of brick/concrete debris. The final area excavated was approximately 21-feet by 47-feet and reached a maximum depth of about 5-feet (refer to Figure 2).

During the remediation process apparently clean overburden fill soils from the exclusion zone based on field screening were stockpiled on tarps adjacent to the exclusion zone. This overburden was sampled and analyzed following Work Plan SOP-214 and analyzed via the NUTRANL methodology to confirm that the material could be backfilled into the excavation once the exclusion zone had been released by the USEPA. The NUTRANL results (Appendix C) indicated the overburden soil had an average of 4.0 pCi/g and "true mean" of 5.76 pCi/g, which are less than the USEPA cleanup level. Thus, the overburden could be utilized on-site as excavation backfill.

On January 3-4, 2011, four flatbed trucks were used to transport the material for disposal at EnergySolutions in Clive Utah. Three trucks were loaded with 14 super-sacks and one with 15 super-sacks. The super-sack and trucks were labeled and manifested for transportation and off-site disposal.

3.2.4 Verification of Successful Remediation

The radiologically contaminated fill soil was removed from the exclusion zone area to apparently clean limits by loading the material directly into one cubic yard super-sacks. Upon reaching the apparently clean limits, a "pre-EPA" survey and sampling was conducted by Glenn Huber (SAHCI) to show that the area met the cleanup standard (refer to samples Nos. 3067 and 3068 in Appendix C). The verification survey area was limited in size to an area no greater than 100 square meters to be consistent with the procedures of SOP-210. After completion of the "pre-EPA" survey, the USEPA was notified and mobilized to the Site to conduct a verification survey of the exclusion zone. The USEPA survey area was the same as that sampled as part of the "pre-EPA" survey sampling effort.

For the USEPA verification survey, the exclusion zone area was divided into four quadrants of approximately equal areas. Five samples were collected for the verification survey area (one sample from each of four quadrants and the fifth sample from the center of the area). These samples were combined to form a single composite sample. In accordance with the Work Plan SOP-210, the composite sample was homogenized by mixing the soil in a clean steel bowl, screened to minus ¼-inch, and five sub-samples (sample splits) were generated for radiological analysis. If the average of these five sub-samples was found to be less than the cleanup threshold of 7.1 pCi/g total radium, a notice of successful verification form was prepared for USEPA signature. The supporting analytical data and verification form were faxed to USEPA. After receipt and review, the USEPA signed the form and returned a faxed copy to AECOM, thus releasing the area for backfilling.

Verification sampling of the excavated portion of the northeast corner was conducted on December 22, 2010, by the USEPA and subsequently released on December 23, 2010. Copies of the signed successful verification forms are provided in Appendix C.

3.3 Post Remediation Gamma Surveying

3.3.1 Sheet Pile Wall Surveying

Construction activities for the new building began with the installation of sheeting/shoring on January 6, 2011. The sheet-pile wall was installed at the perimeter of the property along a 25-foot portion of the northern property boundary, as well as the entire eastern and southern boundaries to provide stabilization for adjacent paving, structures and/or buildings during foundation construction. In general, a shallow trench approximately 8-feet wide (approximately 4-feet below ground surface - bgs) was excavated and the sheeting was placed within the trench and driven to the desired depth. The excavation for the sheet-pile was performed using a backhoe and was necessary to remove potential obstructions that would prevent driving the sheeting. Permanent sheeting along the northern and eastern boundaries was approximately 8-feet in length, while temporary sheeting installed along the alley to the south also measured 8-feet in length.

Measurements of the sheet-pile trench excavations indicated gamma readings that ranged from 10,200 to 15,700 counts per minute (cpm), which is below the unshielded Ludlum threshold value of 18,617 cpm that is equivalent to the USEPA cleanup value of 7.1 pCi/g total radium. Excavation continued in these areas of depths ranging from about 4-feet to 9-feet with gamma readings typically in the 11,000 to 13,000 cpm range. The fill soil in each test pit consisted of brown to black colored sand to gravel size material with cinders, ash and brick/concrete debris. No indications of radiologically contaminated fill above the USEPA clean threshold were observed.

3.3.2 Caisson Surveying

Test pitting at the proposed caisson locations was initiated on January 27 and completed in February, 2011. Test pit areas (about 10 x 10 foot) were excavated with an excavator in 18" lifts at proposed caisson installation locations. The soil was screened by personnel from AECOM using a Ludlum 2221 meter and 2 x 2 NaI probe. The primary purpose of the test pitting activity was to remove any obstructions that could potentially interfere with the installation of the caissons. However, the test pitting also allowed the fill soil at caisson locations to be pre-screened for the potential presence of radiologically contaminated fill soil. Radiological caisson pre-screening activities were performed at locations where soil remediation and/or surveying to the native sand had not occurred previously. No elevated gamma readings indicative of radiologically contaminated fill were observed at any caisson location.

3.3.3 Surveys for Utility Installations

On March 2, 2011, surveying activities were conducted along the East Grand Ave. (northern) property boundary. In the northwest corner, near East Grand Avenue, construction required the installation of a temporary transformer pad and routing of electrical conduits within the Rights of Way (ROW). As a result, a 50-foot long and 13-foot deep area was excavated to native sand (about 8-feet) in the northwest corner of the site during installation. Throughout the excavation, gamma readings ranged between 9,100 and 12,900 cpm. No elevated gamma readings indicative of radiologically contaminated soils were encountered.

On April 1, 2011, the installation of sewer, electrical and water utilities under the existing sidewalk and into Grand Ave. (along the northern property line) began. Three trenches, each approximately 12-foot long x 5-foot wide, were excavated to native sand (about 8-feet) underneath the southern portion of East Grand Ave. along the northern property line of the Site. Gamma readings for the three trenches ranged from 6,300-8,700 cpm. No elevated gamma readings indicative of radiologically contaminated soils were encountered.

4.0 Quantity of Radiologically Contaminated Fill Soil Removed

A total of 57 Super-Sack bulk material containers, each containing approximately 1 cubic yard of radiologically-contaminated fill, were removed from Site during the remediation that was conducted between the days of December 17-22, 2010. The weight of the radiologically contaminated fill soil is estimated to be about 1.25 ton per container based on weights measured during previous removal efforts. Therefore, a total weight of about 71 tons was shipped off-site for disposal. The material was transported for disposal to EnergySolutions Clive Facility (fka Envirocare) in Clive, Utah. The total cost for these remediation, transportation and disposal efforts was approximately $126,000.

5.0 Radiologically Contaminated Fill Remaining On-Site

No known radiologically contaminated fill remains on the Site. Although additional on-site excavation is not anticipated, any fill soil excavation in the future will be surveyed to verify the absence of radiologically contaminated soil. Future excavation activities within the ROW are anticipated. This ROW work, and the associated radiological surveying, will be conducted in accordance with permits issued by the Chicago Department of Environment (CDOE).

6.0 Difficulties Encountered

Only minor difficulties were encountered during the surveying or remediation of radiologically contaminated fills. The difficulties primarily included encounters with underground obstructions (i.e., concrete slabs, footings, etc.) from previous buildings. However, ultimately none of these difficulties impacted the completion of the project.

7.0 Analytical Results

7.1 Soil Sample Radiological Analytical Results

Soil samples collected during the remediation process were analyzed by Glenn Huber (SAHCI) by the NUTRANL analysis methodology to document the concentrations of the target cleanup radionuclides. The NUTRANL analyses for the samples are presented in Appendix C by laboratory number, which is also chronological. Samples collected for verification purposes by the USEPA were analyzed first by SAHCI and then transferred to the USEPA under chain-of-custody.

7.1.1 Pre-verification Samples

The process of verification of remediation in the exclusion zones generally involved the collection and analysis of pre-verification ("pre-EPA") samples to confirm that the removal actions had achieved the required cleanup levels. The impacted area (exclusion zone), which was less than 100 square meters, was surveyed and two pre-EPA survey samples were collected (i.e., pre-verification sample areas) by Glenn Huber (SAHCI). The pre-verification samples (IDs No.3067 and 3068) indicated total radium activities of 3.22 and 2.41 pCi/g total radium, respectively.

7.1.2 USEPA Verification Sample

Verification sampling of the excavated portion of the northeast corner was conducted on December 22, 2010, by the USEPA and subsequently released by USEPA on December 23, 2010. The USEPA verification area was the same as the pre-EPA survey and sampling area (i.e., pre-verification sample areas). USEPA conducted verification surveys and collected verification samples for the exclusion zones. In the exclusion area, five samples were collected to create a composite for the area (i.e., one sample from each of four quadrants and a fifth from approximately the center). The five samples forming the composite were then homogenized (mixed in a clean steel bowl) and five sub-samples were prepared. Results for the five sub-samples ranged from 4.15 to 6.45 pCi/g with an average activity of 5.23 pCi/g total radium. Since the average of the five sub-samples was found to be less than the cleanup threshold of 7.1 pCi/g total radium, a successful verification form was prepared for USEPA signature. The supporting data and form were both faxed to USEPA.

The NUTRANL results of the USEPA verification samples are included with copies of the signed notification of successful verification form in Appendix D, as well as in chronological order with the other NUTRANL results in Appendix C. These same verification samples were transferred to USEPA under chain-of-custody for analysis at its contract laboratory. This data will be included in Appendix E upon completion of the analysis and receipt of the data from the USEPA.

7.2 Equipment Release Surveys

Excavating equipment used in the excavation of radiologically contaminated fill was required to be surveyed to confirm the equipment was free of radiological impacts prior to being released from the Site. This equipment was limited to the excavation bucket used to excavate and load the impacted fill. The remainder of the excavator was not used within the exclusion zones. To confirm the absence of impacts, the treads and other portions of the equipment where soil had accumulated, were surveyed for contamination.

For the excavator buckets, wipes were also taken in accordance with Work Plan SOP-45, and alpha counts were made to confirm the absence of contamination. The limits listed in SOP 345 were those of 32 IAC 340 Appendix A (33 dpm/100 cm^2). However, in practice with "as low as reasonably achievable" (ALARA), the most restrictive federal level of 20 dpm/100 cm^2 for removable contamination from Table 1 of the Nuclear Regulatory Commission's Regulatory Guide 1.86 was used for equipment release. A copy of the alpha count survey results were well below this most restrictive level and are included in Appendix G.

7.3 Personal Air Monitoring

Personal air monitoring (PAM) was conducted for persons working in exclusion zones. As stated previously, because of the limited size and short duration of the remediation efforts the only individual to work in the exclusion zone was the health physicist Glenn Huber (SAHCI). PAM data for radioactivity for both one-day and four-day analyses are included in Appendix H. These data show no exceedances of the allowable exposure limits for this project.

8.0 Summary and Conclusions

The work documented in the 211 E. Grand Ave. Completion Report was conducted in accordance with the Work Plan and Administrative Settlement Agreement and Order on Consent for Removal Action Settlement Agreement dated December 3, 2010. The work described in this 211 E. Grand Ave. Completion Report was conducted in accordance with the procedures outlined in the Work Plan for Remediation of Radiologically-Impacted Soil at 211 E. Grand Ave. (Work Plan) prepared by AECOM dated December 10, 2010 and approved by the USEPA in a correspondence letter dated December 10, 2010.

This 211 E. Grand Ave. Completion Report provides a summary of the remediation of radiologically contaminated fill soil subsequently identified as the result of radiological monitoring conducted during the implementation of the Work Plan activities. The work described in this report includes obtaining verification sign-off from USEPA for the small area at the Site where radiologically contaminated fill was remediated.

In conclusion, this 211 E. Grand Ave. Completion Report and the work described herein meet the work requirements of the December 3, 2010, Administrative Settlement Agreement and Order on Consent for Removal Action. The single radiologically contaminated area identified on the Site has been remediated and signed-off by the USEPA. As a result, AECOM, on behalf of the Ronald McDonald House Charities of Chicagoland and Northwest Indiana, requests written approval by the USEPA of the Completion Report for the 211 E. Grand Ave Site.

On the basis of the removal action having been completed in accordance with the USEPA approved Work Plan, and the verification by USEPA that all identified radiologically contaminated material in excess of the cleanup criteria has been removed, AECOM, on behalf of the Ronald McDonald House Charities of Chicagoland and Northwest Indiana, also requests that USEPA issue a Notice of Completion for the 211 E. Grand Ave. Site, confirming that (a) all identified radiologically contaminated materials with levels of radioactivity in excess of the cleanup threshold standards set forth in the Work Plan have been removed from the site as required by the Work Plan and (b) that no further removal or cleanup action is required at this time with respect to the radiologically contaminated materials on the 211 E. Grand Ave. Site. Since, AECOM, on behalf of Ronald McDonald House Charities, did not screen the entirety of the fill materials at the Site in 18-inch lifts, Ronald McDonald House Charities will record an Environmental Covenant against the title to ensure that any and all future intrusion into the unscreened fill material will be conducted with appropriate radiological screening.

9.0 References

Gabriel Environmental Services (October 3, 2006) Phase I Environmental Site Assessment at 211 E. Grand Ave., Chicago, Illinois, Gabriel Environmental Services Project No, 09-06-22.

USEPA (November 16, 2009) USEPA Survey Results Correspondence for 211 E. Grand Ave., Chicago Illinois.

AECOM (October 11, 2010) Radiological Downhole and Surface Survey Results for 211 E. Grand Ave., Chicago Illinois, AECOM Project No, 60157402.

USEPA (December 3, 2010) Administrative Settlement Agreement on Consent for Removal Action (Docket No. V-W-01-C-960)

AECOM (December 10, 2010) Work Plan for Remediation of Radiologically-Impacted Soil at 211 E. Grand Ave., Chicago, Illinois, AECOM Project No, 60157402.

FIGURES

NATIONAL SURVEY SERVICE, INC.

ALTA/ACSM LAND TITLE SURVEY

Plat of Survey

FIGURE 1

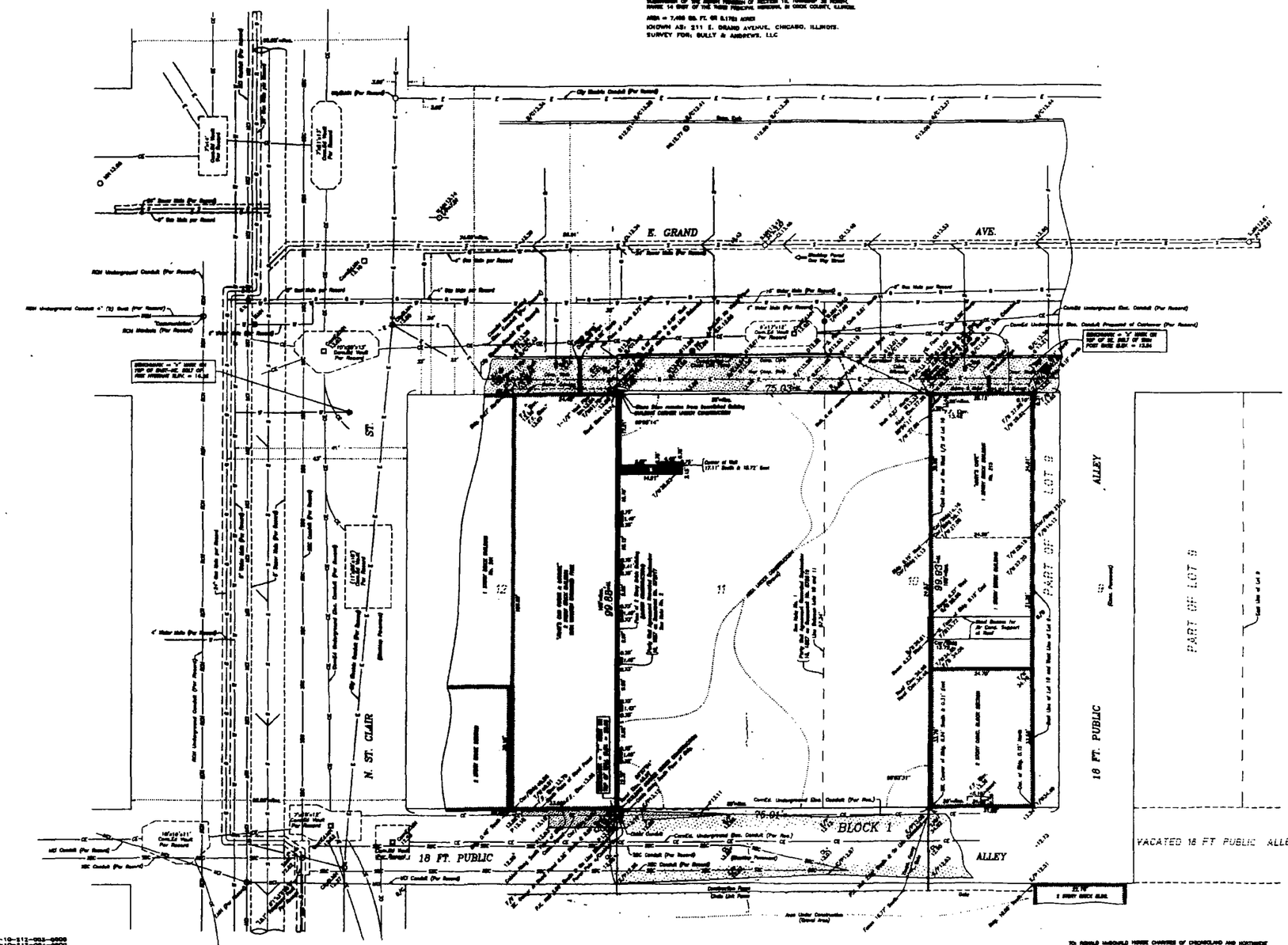
LOT 11 AND THE WEST HALF OF LOT 10 IN THE SUBDIVISION OF BLOCK 1 OF JOHNSTON SUBDIVISION OF BLOCK 12 IN KINZIE, JOHNSTON TO CHICAGO, A SUBDIVISION OF THE NORTH FRACTIONAL QUARTER OF SECTION 10, TOWNSHIP 39 NORTH, RANGE 14 EAST OF THE THIRD PRINCIPAL MERIDIAN, IN COOK COUNTY, ILLINOIS.

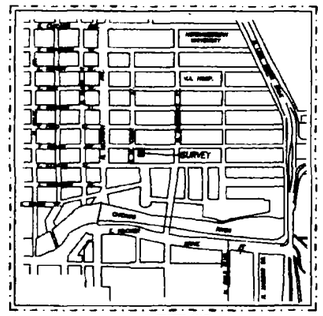
AREA = 7,466 SQ. FT. OR 0.1761 ACRES

KNOWN AS: 211 E. GRAND AVENUE, CHICAGO, ILLINOIS.

SURVEY FOR: BULLY & ANDREWS, LLC

SURVEY NO.		DATE:
N-127941	STAKE & TOPO.	DEC. 11, 2008
	UTILITIES ADDED	JAN. 20, 2009
N-128193	LOCATION	DEC. 1, 2009
N-128278	LOCATION	APL. 9, 2010
N-128383	ELEVATIONS	OCT. 11, 2010





P.I.N. 17-10-212-003-0000
17-10-212-004-0000

IMPORTANT

NO MEASUREMENTS SHOULD BE OBTAINED BY SCALE MEASUREMENTS UPON THIS PLAT.

DISTANCES ARE SHOWN IN FEET AND DECIMAL PARTS THEREOF, THUS: 4.67' MEANS 4 FEET AND 67/100 FEET, OR IN FEET AND INCHES, THUS: 4'-8 1/2".

ANY RECORDED LEASE AND OTHER AGREEMENTS NOT AFFECTING ON SURVEY PLAT ARE TO BE OMITTED. BUILDING LINES AND EASEMENTS AND LOCAL ORDINANCES ARE NOT SHOWN UNLESS SUCH RESTRICTIONS AFFECT THE LAND IN PLACEMENT OF BUILDINGS.

DIMENSIONS AND DESCRIPTIONS SHOWN BY REFERENCE TO RECORDED PLAT ARE CONSIDERED TO BE THE SAME AS ACTUAL MEASUREMENTS UNLESS OTHERWISE NOTED. ALL DIMENSIONS SHOWN ARE MEASURED UNLESS OTHERWISE NOTED. ALL DIMENSIONS SHOWN ARE AT RIGHT ANGLES UNLESS OTHERWISE NOTED. ALL DIMENSIONS OF THIS PLAT ARE IN FEET AND DECIMALS THEREOF. NO DIMENSIONS SHOULD BE ASSUMED BY SCALE MEASUREMENT ON THIS PLAT.

UTILITY AGENCIES SHOWN HEREON PURSUANT TO ILLINOIS ONE CALL SYSTEM, INC. AND PRIVATE UTILITY LOCATIONS. ALL UTILITIES ENCOUNTERED ARE NOT NECESSARILY SHOWN. NO EXCAVATION WAS PERFORMED TO VERIFY EXISTENCE OR NONEXISTENCE OF UNDERGROUND UTILITIES.

UTILITY ALERT NETWORK.

WARNING

CAUTION! BEFORE EXCAVATING, CONTACT ALL UTILITY COMPANIES FOR EXACT LOCATION OF UNDERGROUND FACILITIES. THE LOCATIONS SHOWN ON THIS PLAT ARE APPROXIMATE ONLY AND MAY NOT BE COMPLETE. THE CONTRACTOR SHOULD NOTIFY ALL UTILITY COMPANIES IN ADVANCE OF EXCAVATION AND HAVE THEIR UNDERGROUND FACILITIES LOCATED IN THE FIELD. THIS WILL NOT ONLY ENSURE PROTECTION OF THESE UTILITIES BUT WILL ALSO ASSIST THE CONTRACTOR IN LOCATING HIS OWN UNDERGROUND LINES. CALL J.U.L.I.E. AT 1-800-892-0123 FOR LOCATIONS.

GRAPHIC SCALE

(IN FEET)
1 inch = 30 ft.

BENCHMARK NOTE:
ELEVATIONS ARE SHOWN IN RELATION TO CITY OF CHICAGO STANDARD BENCHMARK NO. 4366, ELEV. = 13.689 C.C.D. (CHICAGO CITY DATUM)

BMK: CUT ON SOUTH END OF EAST SIDE OF ENTRANCE OF NORTH SIDE OF 2 STORY BRICK BUILDING, LARGE 16 STORY FT. WEST OF THE INTERSECT CENTER OF BUILDING AT SOUTHWEST CORNER OF E. GRAND AVE. & ST. CLAIR ST.

FLOOD HAZARD INFORMATION:

THE SUBJECT PROPERTY IS DESIGNATED AS ZONE "X" DEFINED AS AREAS DETERMINED TO BE OUTSIDE THE 0.2% ANNUAL CHANCE FLOODPLAIN, AS SHOWN ON THE FLOOD INSURANCE RATE MAP (FIRM) FOR THE CITY OF CHICAGO, ILLINOIS, COMMUNITY NO. 170074, PANEL NUMBER 0430 MAP NUMBERED 17031C0430J, MAP REVISED AUGUST 19, 2008, AS FURNISHED BY THE FEDERAL EMERGENCY MANAGEMENT AGENCY.

NOTES:
1. (G) AGREEMENT DATED SEPTEMBER 12, 1957 AND RECORDED SEPTEMBER 19, 1957 AS DOCUMENT 5729514, BETWEEN JOE W. KEPLER AND DANIEL O'NEIL FOR A PARTY WALL ON THE EAST LINE OF LOT 11 AFORESAID.

2. (H) AGREEMENT DATED SEPTEMBER 14, 1957 AND RECORDED SEPTEMBER 19, 1957 AS DOCUMENT 5729514, BETWEEN JOE W. KEPLER AND DANIEL O'NEIL FOR A PARTY WALL ON THE WEST LINE OF LOT 11 AFORESAID.

3. THE SUBJECT PROPERTY IS ZONED DX-12 DOWNTOWN MIXED USE.

TO: ANNA MACDONALD HOMER, CHAIRMAN OF CHICAGOLAND AND NORTHWEST INDIANA, AT ILLINOIS NOT FOR PROFIT CORPORATION, CHICAGO NATIONAL TITLE INSURANCE COMPANY, FIDELITY NATIONAL TITLE INSURANCE COMPANY:

THIS IS TO CERTIFY THAT THIS MAP OR PLAT AND THE SURVEY ON WHICH IT IS BASED WERE MADE IN ACCORDANCE WITH THE "MINIMUM STANDARD DETAIL REQUIREMENTS FOR ALTA/ACSM LAND TITLE SURVEYS," JOINTLY ESTABLISHED AND ADOPTED BY ALTA AND NSPS IN 2005, AND INCLUDES ITEMS 1, 2, 3, 4, 6 (Current Zoning Only), 7a, 7b1, 7c, 8, 9, 10, 11a AND 14 OF TABLE A THEREOF. PURSUANT TO THE ACCURACY STANDARDS AS ADOPTED BY ALTA AND NSPS AND IN EFFECT ON THE DATE OF THIS CERTIFICATION, UNDERSIGNED FURTHER CERTIFIES THAT IN MY PROFESSIONAL OPINION, AS A LAND SURVEYOR REGISTERED IN THE STATE OF ILLINOIS, THE RELATIVE POSITIONAL ACCURACY OF THIS SURVEY DOES NOT EXCEED THAT WHICH IS SPECIFIED THEREIN.

POLICY NUMBER: 27200-79668280

DATE OF PLOT: SEPTEMBER 16, 2008

DATE: APRIL 9, 2010

BY: _____
ILLINOIS PROFESSIONAL LAND SURVEYOR NO. 3080

JOSEPH A. LAM
3080
PROFESSIONAL LAND SURVEYOR
STATE OF ILLINOIS
CHICAGO, IL

MY LICENSE EXPIRES 11/30/2010

N-128383	ELEVATIONS	OCT. 11, 2010
N-128278	LOCATION	APL. 9, 2010
N-128193	LOCATION	DEC. 1, 2009
	UTILITIES ADDED	JAN. 20, 2009
SURVEY NO. N-127941	STAKE & TOPO.	DATE: DEC. 11, 2008

State of Illinois } ss.
County of Cook }

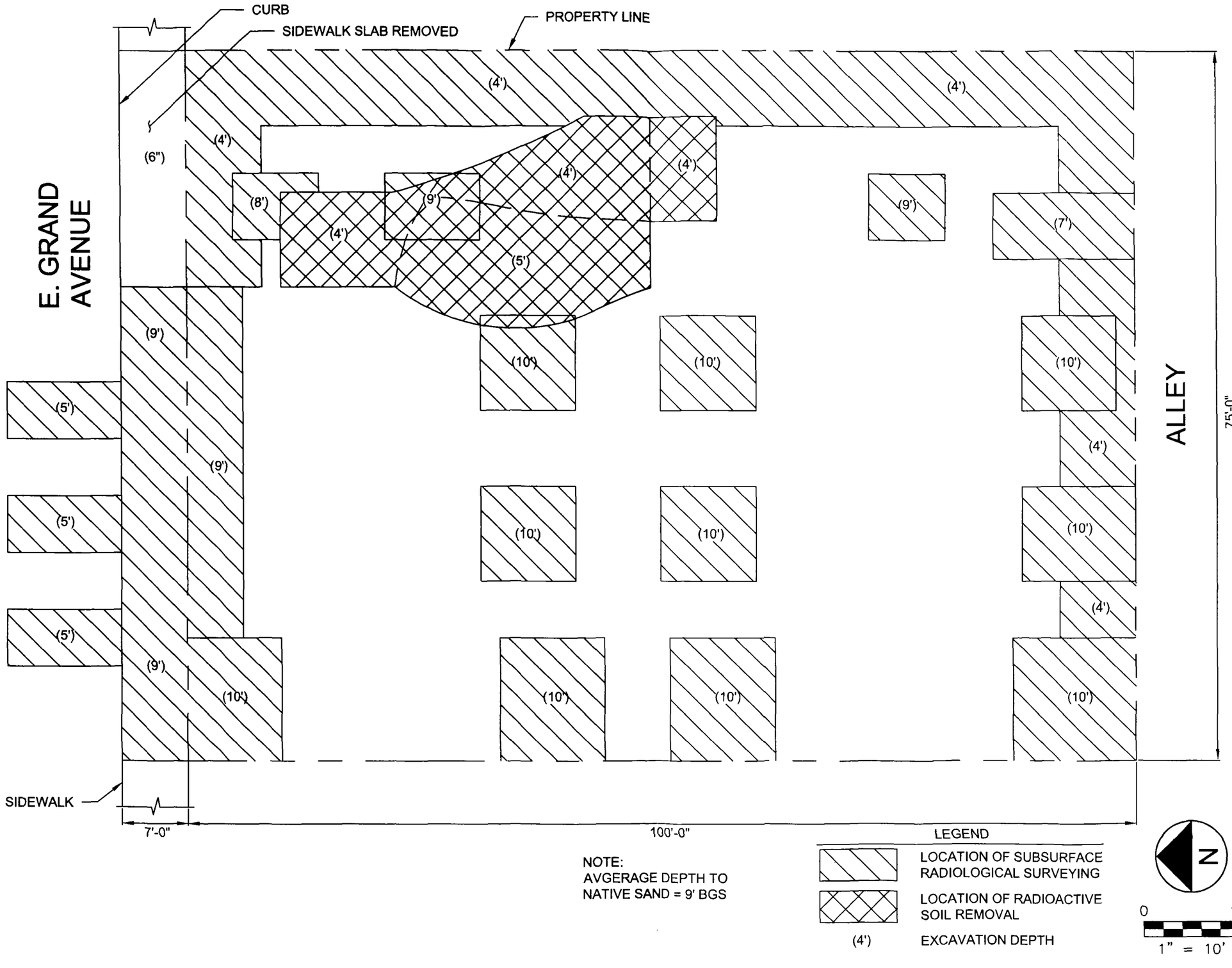
We Hereby Certify that we have surveyed the above described property as determined from recorded records and that the above plat is a true representation of said survey. Dimensions are determined by measurements of 62' Fahrenheit. This professional service conforms to the current Illinois minimum standards for a boundary survey.

NATIONAL SURVEY SERVICE, INC.
PROFESSIONAL LAND SURVEYORS
30 S. MICHIGAN AVENUE, SUITE 300
CHICAGO, ILLINOIS 60603
TEL: 312-630-9499 FAX: 312-630-9484

BY: _____
ILLINOIS PROFESSIONAL LAND SURVEYOR NO. 3080

STAKED BY: _____ K.P./J.M.

LAND PROJECTS 2008\N128383\8383.DWG CO-21



AECOM

847-279-2500
www.aecom.com

RADIOLOGICALLY-IMPACTED SOIL INVESTIGATION
AND REMEDIATION LOCATIONS
RONALD MCDONALD HOUSE CHARITIES
211 E. GRAND AVENUE
CHICAGO, ILLINOIS

Drawn :	KLC	05/26/2011
Checked:	BRS	05/26/2011
Approved:	SCK	05/26/2011
PROJECT NUMBER	60157402	
FIGURE NUMBER	FIG. 2	

APPENDIX

Appendix A

USEPA Correspondence

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION 5
77 WEST JACKSON BOULEVARD
CHICAGO, IL 60604-3590

REPLY TO THE ATTENTION OF:

December 10, 2010

SE-5J

(VIA E-MAIL STEVE.KORNDER@AECOM.COM)

Dr. Steve Kornder
AECOM
750 Corporate Woods Parkway
Vernon Hills, Illinois 60061

RE: Lindsay Light II OU 16/211 East Grand (AKA Ronald McDonald House Charities)

Dear. Dr. Kornder:

U.S. EPA has reviewed the work plan dated November 29, 2010 and revised on December 8, 2010. U.S. EPA accepts the changes and has incorporated this work plan into the Administrative Settlement Agreement on Consent (ASAOC).

If you have any technical questions, please contact me at (312) 886-3601 or Eugene Jablonowski, Superfund Health Physicist, at (312) 493-4363. Please direct legal questions to Cathleen Martwick, Associate Regional Counsel, at (312) 886-7166 and Mary Fulghum, Associate Regional Counsel, at (312) 886-4683.

Sincerely,

FOR VJS

Verneta Simon
On-Scene Coordinator

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION 5

IN THE MATTER OF:

Lindsay Light II Operable Unit 16
Chicago. Illinois

Respondent:

Ronald McDonald
House Charities of Chicagoland
and Northwest Indiana

ADMINISTRATIVE SETTLEMENT
AGREEMENT AND ORDER ON
CONSENT FOR REMOVAL ACTION

Docket No. V-W-10-C-960

Proceeding Under Sections 104, 106(a), 107
and 122 of the Comprehensive
Environmental Response, Compensation,
and Liability Act, as amended,
42 U.S.C. §§ 9604, 9606(a), 9607 and 9622

TABLE OF CONTENTS

I. JURISDICTION AND GENERAL PROVISIONS

1. This Administrative Settlement Agreement and Order on Consent ("Settlement Agreement") is entered into voluntarily by the United States Environmental Protection Agency ("U.S. EPA") and Respondent. This Settlement Agreement provides for the performance of removal actions by Respondent including recording deed restrictions on portions of the Site where radioactive contamination may be present and the reimbursement of certain response costs incurred by the United States at or in connection with the property designated Lindsay Light Operable Unit ("OU") 16, located at 211 E. Grand Avenue, Chicago, Illinois and known as the "Site."

2. This Settlement Agreement is issued under the authority vested in the President of the United States by Sections 104, 106(a), 107 and 122 of the Comprehensive Environmental Response, Compensation, and Liability Act of 1980, 42 U.S.C. §§ 9604, 9606(a), 9607 and 9622, as amended ("CERCLA"). This authority has been delegated to the Administrator of the U.S. EPA by Executive Order No. 12580, January 23, 1987, 52 Federal Register 2923, and further delegated to the Regional Administrators by U.S. EPA Delegation Nos. 14-14-A, 14-14-C and 14-14-D, and to the Director, Superfund Division, Region 5, by Regional Delegation Nos. 14-14-A, 14-14-C and 14-14-D.

3. U.S. EPA has notified the State of Illinois (the "State") of this action pursuant to Section 106(a) of CERCLA, 42 U.S.C. § 9606(a).

4. U.S. EPA and Respondent recognize that this Settlement Agreement has been negotiated in good faith and that the actions undertaken by Respondent in accordance with this Settlement Agreement do not constitute an admission of any liability. Respondent does not admit, and retains the right to controvert in any subsequent proceedings other than proceedings to implement or enforce this Settlement Agreement, the validity of the findings of facts, conclusions of law, and determinations in Sections IV and V of this Settlement Agreement. Respondent agrees to comply with and be bound by the terms of this Settlement Agreement and further agrees that it will not contest the basis or validity of this Settlement Agreement or its terms.

II. PARTIES BOUND

5. This Settlement Agreement applies to and is binding upon U.S. EPA and upon Respondent and its successors and assigns. Any change in ownership or corporate status of the Respondent including, but not limited to, any transfer of assets or real or personal property shall not alter the Respondent's responsibilities under this Settlement Agreement.

6. Respondent is jointly and severally liable for carrying out all activities required by this Settlement Agreement.

7. Respondent shall ensure that its contractors, subcontractors, and representatives comply with this Settlement Agreement. Respondent shall be responsible for any noncompliance with this Settlement Agreement.

III. DEFINITIONS

8. Unless otherwise expressly provided herein, terms used in this Settlement Agreement which are defined in CERCLA or in regulations promulgated under CERCLA shall have the meaning assigned to them in CERCLA or in such regulations. Whenever terms listed below are used in this Settlement Agreement or in the appendices attached hereto and incorporated hereunder, the following definitions shall apply:

a. "CERCLA" shall mean the Comprehensive Environmental Response, Compensation, and Liability Act of 1980, as amended, 42 U.S.C. §§ 9601, *et seq.*

b. "Effective Date" shall be the effective date of this Settlement Agreement as provided in Section XXX.

c. "Future Response Costs" shall mean all costs, including direct and indirect costs, that the United States incurs in reviewing or developing plans, reports and other items pursuant to this Settlement Agreement, verifying the Work, or otherwise implementing, overseeing, or enforcing this Settlement Agreement on or after the Effective Date.

d. "Interest" shall mean interest at the rate specified for interest on investments of the U.S. EPA Hazardous Substance Superfund established by 26 U.S.C. § 9507, compounded annually on October 1 of each year, in accordance with 42 U.S.C. § 9607(a). The applicable rate of interest shall be the rate in effect at the time the interest accrues. The rate of interest is subject to change on October 1 of each year.

e. "National Contingency Plan" or "NCP" shall mean the National Oil and Hazardous Substances Pollution Contingency Plan promulgated pursuant to Section 105 of CERCLA, 42 U.S.C. § 9605, codified at 40 C.F.R. Part 300, and any amendments thereto.

f. "Settlement Agreement" shall mean this Administrative Settlement Agreement and Order on Consent and all appendices attached hereto (listed in Section XXIX). In the event of conflict between this Settlement Agreement and any appendix, this Settlement Agreement shall control.

g. "Parties" shall mean U.S. EPA and Respondent.

h. "Past Response Costs" shall mean all costs, including, but not limited to, direct and indirect costs, that the United States paid at or in connection with the Site through November 30, 2010.

i. "RCRA" shall mean the Solid Waste Disposal Act, as amended, 42 U.S.C. §§ 6901. *et seq.* (also known as the Resource Conservation and Recovery Act).

j. "Respondent" shall mean Ronald McDonald House Charities of Chicagoland and Northwest Indiana, a 501(c)(3) Not for Profit Organization.

k. "Site" shall mean the Lindsay Light II, Operable Unit 16, located at 211 E. Grand Avenue in Chicago, Cook County, Illinois and depicted generally on the map attached as Exhibit A.

l. "State" shall mean the State of Illinois.

m. "Uninvestigated Site Perimeter" shall mean any portion of the Site which is not radiologically surveyed in 18-inch lifts or any portion of the site where any known contamination will remain after completion of the Work.

n. "U.S. EPA" shall mean the United States Environmental Protection Agency and any successor departments or agencies of the United States.

o. "Waste Material" shall mean 1) any "hazardous substance" under Section 101(14) of CERCLA, 42 U.S.C. § 9601(14); 2) any pollutant or contaminant under Section 101(33) of CERCLA, 42 U.S.C. § 9601(33); 3) any "solid waste" under Section 1004(27) of RCRA, 42 U.S.C. § 6903(27); and 4) any "hazardous material" under Section 3.125 of the Illinois Environmental Protection Act, 415 ILCS 5/3.125 (2002).

p. "Work" shall mean all activities the Respondent is required to perform under this Settlement Agreement.

q. "Work Plan" shall mean the U.S. EPA-approved work plan including schedule described in Section VIII Work to be Performed.

IV. FINDINGS OF FACT

9. Based on available information, including the Administrative Record in this matter, U.S. EPA hereby finds that:

a. The Site is located at 211 E. Grand Avenue in Chicago, Illinois. A four-story building built in 1897 formerly occupied the western two-thirds of the Site.

b. The Site is located approximately 2 blocks east of the 316 E. Illinois Street location where the Lindsay Light Company ("Lindsay Light") refined monazite ore to produce thorium nitrate and manufacture thorium-impregnated gas mantles.

c. Beginning in 1904, Lindsay Light manufactured gas lights and gas mantles for residential and commercial use at several locations in the Streeterville area. In 1914, Lindsay Light expanded its thorium manufacturing capacity to meet increased domestic and foreign demand. The production of thorium for its gas light mantles resulted in a sandy waste known as mill tailings that was used as fill material in the Streeterville area. Lindsay Light corporate records indicate that the company planned to move all of its Streeterville operations to the City of West Chicago by September 1936.

d. U.S. EPA designated the initial thorium removal action at 316 East Illinois Street which was the former location of Lindsay Light's ore processing plant as the Lindsay Light II Removal Site. Following that initial removal action during which approximately 24,000 cubic yards of thorium contaminated soils were removed, U.S. EPA has identified 14 other removal action operable units associated with the Lindsay Light II facility. In addition to the soils removed from the Lindsay Light II facility, to date, approximately 50,000 cubic yards of thorium contaminated material associated with the Lindsay Light II facility have been removed from the Streeterville area.

e. U.S. EPA has identified subsurface thorium contamination at the Site.

f. Respondent completed demolition of the buildings at the Site on April 2, 2010. The Site will be the location of the largest Ronald McDonald House in the world, serving the needs of children and their families who will be undergoing healthcare treatment at the new Laurie Children's Hospital and other hospitals in the immediate vicinity.

g. Construction laborers, utility workers and the public may be exposed to elevated levels of thorium if the Site is excavated without proper radiation monitoring and management and disposal of radioactively contaminated materials.

h. Respondent may identify and remove radioactively contaminated soil only from certain portions of the Site.

V. CONCLUSIONS OF LAW AND DETERMINATIONS

10. Based on the Findings of Fact set forth above, and the Administrative Record supporting this removal action, U.S. EPA has determined that:

a. The Site is a part of a "facility" as defined by Section 101(9) of CERCLA, 42 U.S.C. § 9601(9).

b. The contamination found at the Lindsay Light II facility, as identified in the Findings of Fact above, includes a "hazardous substance" as defined by Section 101(14) of CERCLA, 42 U.S.C. § 9601(14).

c. The Respondent is a "person" as defined by Section 101(21) of CERCLA, 42 U.S.C. § 9601(21).

d. The Respondent is a responsible party under Section 107(a) of CERCLA, 42 U.S.C. § 9607(a), and is jointly and severally liable for performance of response action and for response costs incurred and to be incurred at the Site.

i. Respondent Ronald McDonald House Charities of Chicagoland and Northwest Indiana, is the "owner" and/or "operator" of the Site, as defined by Section 101(20) of CERCLA, 42 U.S.C. § 9601(20), and within the meaning of Section 107(a)(1) of CERCLA, 42 U.S.C. § 9607(a)(1).

e. The conditions described in the Findings of Fact above constitute an actual or threatened "release" of a hazardous substance from the facility into the "environment" as defined by Sections 101(22) and 101(8) of CERCLA, 42 U.S.C.§§ 9601(22) and 9601(8).

f. The conditions present at the facility constitute a threat to public health, welfare, or the environment based upon the factors set forth in Section 300.415(b)(2) of the National Oil and Hazardous Substances Pollution Contingency Plan, as amended ("NCP"), 40 C.F.R. §300.415(b)(2). These factors include, but are not limited to, the following:

i. Actual or potential exposure to nearby human populations, animals, or the food chain from hazardous substances, pollutants or contaminants; this factor is present at the Site due to the existence of elevated levels of thorium found in subsurface soils that will be exposed by the removal of overburden and excavation.

ii. High levels of hazardous substances or pollutants or contaminants in soils largely at or near the surface, that may

migrate; this factor is present at the facility due to the existence of elevated levels of thorium in subsurface soils that will be exposed by the removal of overburden and excavation.

iii. Other situations or factors that may pose threats to public health or welfare or the environment; this factor is present at the facility due to the existence of elevated levels of thorium in subsurface soils that may be exposed during construction activities that may expose construction laborers, utility workers and the public to excessive levels of thorium.

g. The removal action, including deed restrictions, required by this Settlement Agreement is necessary to protect the public health, welfare, or the environment, 42 U.S.C. § 9604(a)(1), is in the public interest, 42 U.S.C. § 9622(a), and, if carried out in compliance with the terms of this Settlement Agreement, will be done properly and promptly by the Respondent and considered consistent with the NCP. 42 U.S.C. §§ 9604(a)(1) and 9622(a).

VI. SETTLEMENT AGREEMENT AND ORDER

Based upon the foregoing Findings of Fact, Conclusions of Law, Determinations, and the Administrative Record for this Site, it is hereby Ordered and Agreed that Respondent shall comply with all provisions of this Settlement Agreement, including, but not limited to, all Exhibits to this Settlement Agreement and all documents incorporated by reference into this Settlement Agreement.

VII. DESIGNATION OF CONTRACTOR, PROJECT COORDINATOR, AND ON-SCENE COORDINATOR

11. Respondent has selected a supervising contractor known as AECOM to perform the Work. Respondent has provided U.S. EPA with the qualifications of AECOM. Respondent has also notified U.S. EPA of the names of Bulley & Andrews and CR Daccord as the subcontractors retained to perform the Work at the Site. If Respondent contracts with any other contractor(s) or subcontractor(s) to perform Work. Respondent must provide notice of the name(s) and qualification(s) of such person(s) at least 5 business days prior to commencement of such Work. U.S. EPA retains the right to disapprove of any or all of the contractors and/or subcontractors retained by Respondent. If U.S. EPA disapproves of a selected contractor, Respondent shall retain a different contractor and shall notify U.S. EPA of that contractor's name and qualifications within 3 business days of U.S. EPA's disapproval. The supervising contractor must demonstrate compliance with ANSI/ASQC E-4-1994, "Specifications and Guidelines for Quality Systems for Environmental Data Collection and Environmental Technology Programs" (American National Standard, January 5, 1995), by submitting a copy of the contractor's Quality Management Plan ("QMP"). The QMP should be prepared consistent with "EPA

Requirements for Quality Management Plans (QA/R-2)" (EPA/240/B0-1/002), or equivalent documentation as required by U.S. EPA.

12. Respondent has designated Steven Kornder of AECOM as the Project Coordinator who shall be responsible for administration of all actions by Respondent required by this Settlement Agreement. To the greatest extent possible, the Project Coordinator shall be present on Site or readily available during Site work. U.S. EPA retains the right to disapprove of any subsequent designated Project Coordinator. If U.S. EPA disapproves of a designated Project Coordinator, Respondent shall retain a different Project Coordinator and shall notify U.S. EPA of that person's name, address, telephone number, and qualifications within 4 business days following U.S. EPA's disapproval. Receipt by Respondent's Project Coordinator of any notice or communication from U.S. EPA relating to this Settlement Agreement shall constitute receipt by Respondent.

13. U.S. EPA has designated Verneta Simon of the Emergency Response Branch, Region 5, as its On-Scene Coordinator ("OSC") and Eugene Jablonowski, Remedial Project Manager, of the Remedial Response Branch, Region 5 as its alternate OSC. Except as otherwise provided in this Settlement Agreement, Respondent shall direct all submissions required by this Settlement Agreement to the OSCs in accordance with Section XXVIII Notices and Submissions. Respondent is encouraged to make its submissions to U.S. EPA on recycled paper (which includes significant post consumer waste paper content where possible) and using two-sided copies.

14. U.S. EPA and Respondent shall have the right, subject to Paragraph 12, to change their respective designated OSCs or Project Coordinator. U.S. EPA shall notify the Respondent, and Respondent shall notify U.S. EPA, as early as possible before such a change is made, but in no case less than 24 hours before such a change. The initial notification may be made orally but it shall be promptly followed by a written notice.

VIII. WORK TO BE PERFORMED

15. Respondent shall perform, at a minimum, the following removal activities:

a) Develop a Work Plan for the radiological assessment of the site.

b) Develop and implement a site health and safety plan.

c) Develop and implement an air monitoring plan.

d) Develop and implement site security measures.

e) Conduct land surveying to the extent necessary to establish a grid system to locate all property boundaries, special features (pipes, storage tanks, etc.), and sample locations.

f) Conduct off-site radiological surveying and sampling as necessary should contamination be discovered within the sidewalk rights-of-ways surrounding the Site and, at a minimum implement 40 C.F.R. Part 192 if deemed necessary.

g) Based upon soil results, remove, transport and dispose of all characterized or identified hazardous substances, pollutants, wastes or contaminants at a RCRA/CERCLA approved disposal facility in accordance with the U.S. EPA off-site rule.

h) The soil clean-up criterion is 7.1 picoCuries per gram (pCi/g) total radium (Ra-226 + Ra-228) including background, unless analyses indicate the existence of additional contaminants, hazardous substances, pollutants or waste.

i) If any portion of the Site is not radiologically surveyed in 18-inch lifts or if any known contamination will remain after completion of the Work then Respondent shall identify and depict all locations at the Site that were not radiologically surveyed in 18-inch lifts or where any known contamination will remain after completion of the Work and shall implement U.S. EPA-approved deed restrictions or other U.S. EPA-approved institutional controls pertaining to the Site.

16. Work Plan and Implementation.

a. On November 30, 2010, Respondent submitted to U.S. EPA for approval a draft Work Plan, including a schedule, for performing the removal action generally described in Paragraph 15 above.

b. U.S. EPA may approve, disapprove, require revisions to, or modify the draft Work Plan in whole or in part. If U.S. EPA requires revisions, Respondent shall submit a revised draft Work Plan within 7 business days of receipt of U.S. EPA's notification of the required revisions. Respondent shall implement the Work Plan as approved in writing by U.S. EPA in accordance with the schedule approved by U.S. EPA. Once approved, or approved with modifications, the Work Plan, the schedule, and any subsequent modifications shall be incorporated into and become fully enforceable under this Settlement Agreement.

c. Respondent shall not commence any Work except in conformance with the terms of this Settlement Agreement. Respondent shall not commence implementation of the Work Plan developed hereunder until receiving written U.S. EPA approval pursuant to Paragraph 16(b).

17. Health and Safety Plan. Respondent has submitted for U.S. EPA review and comment a plan that ensures the protection of the public health and safety during performance of on-Site work under this Settlement Agreement. This plan must be prepared consistent with U.S. EPA's Standard Operating Safety Guide (PUB 9285.1-03, PB 92-963414, June 1992). In addition, the plan shall comply with all currently applicable Occupational Safety and Health Administration ("OSHA") regulations found at 29 C.F.R. Part 1910. If U.S. EPA determines that it is appropriate, the plan shall also include contingency planning. Respondent shall incorporate all changes to the plan recommended by U.S. EPA and shall implement the plan during the pendency of the removal action.

18. Quality Assurance and Sampling.

a. All sampling and analyses performed pursuant to this Settlement Agreement shall conform to U.S. EPA direction, approval, and guidance regarding sampling, quality assurance/quality control ("QA/QC"), data validation, and chain of custody procedures. Respondent shall ensure that the laboratory used to perform the analyses participates in a QA/QC program that complies with the appropriate U.S. EPA guidance. Respondent shall follow, as appropriate, "Quality Assurance/Quality Control Guidance for Removal Activities: Sampling QA/QC Plan and Data Validation Procedures" (OSWER Directive No. 9360.4-01, April 1, 1990), as guidance for QA/QC and sampling. Respondent shall only use laboratories that have a documented Quality System that complies with ANSI/ASQC E-4 1994, "Specifications and Guidelines for Quality Systems for Environmental Data Collection and Environmental Technology Programs" (American National Standard, January 5, 1995), and "EPA Requirements for Quality Management Plans (QA/R-2) (EPA/240/B-01/002, March 2001)," or equivalent documentation as determined by U.S. EPA. U.S. EPA may consider laboratories accredited under the National Environmental Laboratory Accreditation Program ("NELAP") as meeting the Quality System requirements. Respondent shall prepare a Quality Assurance Project Plan ("QAPP") as part of the Work Plan except in circumstances involving emergency or non-complex removal work. The QAPP should be prepared in accordance with "EPA Requirements for Quality Assurance Project Plans (QA/R-5)" (EPA/240/B-01/003, March 2001), and "EPA Guidance for Quality Assurance Project Plans (QA/G-5)" (EPA/600/R-98/018, February 1998).

b. Upon request by U.S. EPA, Respondent shall have such a laboratory analyze samples submitted by U.S. EPA for QA monitoring. Respondent shall provide to U.S. EPA the QA/QC procedures followed by all sampling teams and laboratories performing data collection and/or analysis.

c. Upon request by U.S. EPA, Respondent shall allow U.S. EPA or its authorized representatives to take split and/or duplicate samples. Respondent shall notify U.S. EPA not less than 3 business days in advance of any sample collection activity, unless shorter notice is agreed to by U.S. EPA. U.S. EPA shall have the right to conduct radiation surveillance and take any

additional samples that U.S. EPA deems necessary. Upon request, U.S. EPA shall allow Respondent to take split or duplicate samples of any samples it takes as part of its oversight of Respondent's implementation of the Work.

19. Reporting.

a. Respondent shall submit a written progress report to U.S. EPA concerning actions undertaken pursuant to this Settlement Agreement every 30th day after the date of receipt of U.S. EPA's approval of the Work Plan until termination of this Settlement Agreement, unless otherwise directed in writing by the OSC. These reports shall describe all significant developments during the preceding period, including the actions performed and any problems encountered, analytical data received during the reporting period, and the developments anticipated during the next reporting period, including a schedule of actions to be performed, anticipated problems, and planned resolutions of past or anticipated problems.

b. Respondent shall submit 3 copies of all plans, reports or other submissions required by this Settlement Agreement, or any approved work plan. Upon request by U.S. EPA, Respondent shall submit such documents in electronic form.

c. Respondent shall prior to the transfer or conveyance of any interest in real property at the Site (excluding condominium units or parking spaces), give written notice to the transferee that the property is subject to this Settlement Agreement and written notice to U.S. EPA of the transfer or conveyance, including the name and address of the transferee. Respondent also agrees to require that its successors comply with the immediately preceding sentence and Sections IX (Site Access), X (Deed Restriction/Institutional Control Document) and XI (Access to Information).

20. Final Report. Within 60 calendar days after completion of all Work required by Section VIII of this Settlement Agreement, Respondent shall submit for U.S. EPA review a final report summarizing the actions taken to comply with this Settlement Agreement. The final report shall conform, at a minimum, with the requirements set forth in Section 300.165 of the NCP entitled "OSC Reports" and with the guidance set forth in "Superfund Removal Procedures: Removal Response Reporting – POLREPS and OSC Reports" (OSWER Directive No. 9360.3-03, June 1, 1994). The final report shall include a good faith estimate of total costs or a statement of actual costs incurred in complying with the Settlement Agreement, a listing of quantities and types of materials removed off-Site or handled on-Site, a discussion of removal and disposal options considered for those materials, a listing of the ultimate destination(s) of those materials, a presentation of the analytical results of all sampling and analyses performed, and accompanying appendices containing all relevant documentation generated during the removal action (*e.g.*, manifests, invoices, bills, contracts, and permits). The final report shall also include the following certification signed by a person who supervised or directed the preparation of that report:

"Under penalty of law, I certify that to the best of my knowledge, after appropriate inquiries of all relevant persons involved in the preparation of the report, the information submitted is true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations."

21. Off-Site Shipments.

a. Radioactive Waste Material. Respondent will transport radioactive waste material to a disposal facility licensed to accept radioactive Waste Material from the Site. Prior to the initial shipment of radioactive Waste Material originating from the Site, Respondent shall provide written notification of such shipment to the appropriate state environmental official and to the On-Scene Coordinators.

i. Respondent shall include in the written notification the following information: 1) the name and location of the facility to which the Waste Material is to be shipped; 2) the type and quantity of the Waste Material to be shipped; 3) the expected schedule for the shipment of the Waste Material; and 4) the method of transportation. Respondent shall notify the state in which the planned receiving facility is located of major changes in the shipment plan, such as a decision to ship the Waste Material to another facility within the same state, or to a facility in another state.

b. Other Waste Material. If Respondent encounters any hazardous substances that are not radioactively contaminated in the course of conducting the Work, then before shipping any such non-radioactively contaminated hazardous substances, pollutants, or contaminants from the Site to an off-site location, Respondent shall obtain U.S. EPA's certification that the proposed receiving facility is operating in compliance with the requirements of CERCLA Section 121(d)(3). 42 U.S.C. § 9621(d)(3), and 40 C.F.R. § 300.440. Respondent shall only send hazardous substances, pollutants, or contaminants from the Site to an off-site facility that complies with the requirements of the statutory provision and regulation cited in the preceding sentence.

i. Prior to the initial shipment of non-radioactively contaminated Waste Material originating from the Site, Respondent shall provide written notification of such shipment to the appropriate state environmental official and to the On-Scene Coordinators. Settling Defendant shall comply with the terms and conditions of the notification requirements of Paragraph 21.a. i. for each such shipment of non-radioactive hazardous substances, pollutants, and

contaminants.

ii. The identity of any facility and state receiving the non-radioactively contaminated Waste Material will be determined by Respondent following the award of the contract for the removal action. Respondent shall provide the information required by Paragraph 21(a) and 21(b) as soon as practicable after the award of the contract and before the Waste Material is actually shipped.

IX. SITE ACCESS

22. If the Site, or any other property where access is needed to implement this Settlement Agreement, is owned or controlled by the Respondent, Respondent shall, commencing on the Effective Date, provide U.S. EPA, the State, and their representatives, including contractors, with access at all reasonable times to the Site, or such other property, for the purpose of conducting any activity related to this Settlement Agreement.

23. Where any action under this Settlement Agreement is to be performed in areas owned by or in possession of someone other than Respondent, Respondent shall use its best efforts to obtain all necessary access agreements within 10 business days after the Effective Date, or as otherwise specified in writing by the OSC. Respondent shall immediately notify U.S. EPA if after using its best efforts it is unable to obtain such agreements. For purposes of this Paragraph, "best efforts"include the payment of reasonable sums of money in consideration of access. Respondent shall describe in writing its efforts to obtain access. U.S. EPA may then assist Respondent in gaining access, to the extent necessary to effectuate the response actions described herein, using such means as U.S. EPA deems appropriate. Respondent shall reimburse U.S. EPA for all costs and attorney's fees incurred by the United States in obtaining such access, in accordance with the procedures in Section XVI (Payment of Response Costs).

24. Notwithstanding any provision of this Settlement Agreement, U.S. EPA and the State retain all of their access authorities and rights, including enforcement authorities related thereto, under CERCLA, RCRA, and any other applicable statutes or regulations.

X. DEED RESTRICTION/ INSTITUTIONAL CONTROL DOCUMENT

25. Post-Removal Site Control. Consistent with 40 C.F.R. §300.415(*l*) of the NCP and OSWER Directive No. 9360.2-02, upon completion of all Work required by Section VIII of this Settlement Agreement, if any portion of the Site is not radiologically surveyed in 18-inch lifts or if any known contamination will remain after completion of the Work then:

a. In accordance with the Work Plan, Respondent shall submit to U.S. EPA a map of the Uninvestigated Site Perimeter and

b. If Respondent, its contractors, representatives or agents disturb, expose or intrude upon the soils in the Uninvestigated Site Perimeter, Respondent, its contractors, representatives and agents shall notify U.S. EPA both by telephone and in writing of plans to work in the Uninvestigated Site Perimeter at least 72 hours prior to (but no more than 21 calendar days in advance of) commencing such activities. If material containing total radium exceeding 7.1 pCi/g is identified, the Respondent shall provide a letter report to U.S. EPA explaining how the work was conducted in accordance with the Work Plan within 60 days of completion of the work.

26. Within thirty (30) days of the completion of all Work required by Section VIII of the Settlement Agreement, if any portion of the Site is not radiologically surveyed in 18-inch lifts or if any known contamination will remain after completion of the Work, Respondent shall record, with the Recorder of Deeds, Cook County, Illinois, a deed restriction or other institutional control document ("Deed Restriction"), that U.S. EPA has approved in writing for this Site, and Respondent agrees that every subsequent deed or conveyance or transfer of any property interest instrument will be subject to the Deed Restriction. The Respondent further agrees that the language in the Deed Restriction shall not be modified or removed from the Deed Restriction without pre-approval from U.S. EPA, as described in Paragraph 27.

a. In the event of a conveyance or transfer of property interest, Respondent's obligations under this Settlement Agreement, including, but not limited to, its obligation to provide or secure access and institutional controls, as well as to abide by such institutional controls pursuant to this Section (Deed Restrictions/Institutional Control Document), shall continue to be met by Respondent unless otherwise agreed to by the U.S. EPA in writing. In no event shall the conveyance or transfer of property interest release or otherwise affect the liability of Respondent to comply with all provisions of this Settlement Agreement unless otherwise agreed to among the Parties hereto in writing.

b. The intent of Respondent is to record a Deed Restriction that is applicable to all subsequent owners of the Site. The Deed Restriction will apply to any portion of the Site that is not radiologically surveyed in 18-inch lifts or where any known contamination will remain after completion of the Work. The Deed Restriction shall provide the following:

1) subject to Paragraph 27, a restriction, in perpetuity, on the disturbance of, exposure of or intrusion upon any portion of the Site that a) is not radiologically surveyed in 18-inch lifts or b) where any known contamination will remain;

2) the right to enforce said restrictions;

3) a right of access to the Site;

4) prior notice of disturbance, exposure, intrusion, or excavation of the soils in any portion of the Site that is not radiologically surveyed in 18-inch lifts or where any known contamination will remain; and

5) an agreement that when soils are disturbed, exposed, intruded or excavated in those areas, those activities are conducted in accordance with the Work Plan.

c. The Respondent agrees that every subsequent deed or other instrument conveying or transferring a property interest in the Site or any portion thereof shall be subject to the Deed Restriction.

27. U.S. EPA may terminate the restrictions in Paragraphs 25 and 26, in whole or in part, in writing, as authorized by law. If requested by the U.S. EPA, such writing will be executed by the Respondent in recordable form and recorded with the Recorder of Deeds, Cook County, Illinois. Respondent may modify or terminate the above restrictions in whole or in part, in writing, with the prior written approval of U.S. EPA. Respondent may seek to modify or terminate, in whole or in part, the restrictions by submitting to U.S. EPA, for approval, a written application that identifies each such restriction to be terminated or modified, describes the terms of each proposed modification and includes proposed revision(s) to the Deed Restriction and institutional control document described in this Section X (Deed Restrictions/Institutional Control Document). Each application for termination or modification of any restriction shall include a demonstration that the requested termination or modification will not interfere with, impair or reduce protection of human health and the environment. If U.S. EPA makes a determination that an application satisfies the requirements of this Paragraph, including the criteria specified above, U.S. EPA will notify Respondent in writing. If U.S. EPA does not respond in writing to a request to change land use within 90 days of its receipt of that request, unless Respondent agrees to extend this period beyond 90 days, U.S. EPA may be deemed to have denied the request. If a modification to or termination of restriction is approved, Respondent shall record the revised Deed Restriction as approved by U.S. EPA, with the Recorder of Deeds, Cook County, Illinois.

XI. ACCESS TO INFORMATION

28. Respondent shall provide to U.S. EPA, upon request, copies of all documents and information within its possession or control or that of its contractors or agents relating to activities at the Site or to the implementation of this Settlement Agreement, including, but not limited to, sampling, analysis, chain of custody records, manifests, trucking logs, receipts, reports, sample traffic routing, correspondence, or other documents or information related to the Work. Respondent shall also make available to U.S. EPA, for purposes of investigation, information gathering, or testimony, its employees, agents, or representatives with knowledge of relevant facts concerning the performance of the Work.

29. Respondent may assert business confidentiality claims covering part or all of the documents or information submitted to U.S. EPA under this Settlement Agreement to the extent permitted by and in accordance with Section 104(e)(7) of CERCLA, 42 U.S.C. § 9604(e)(7), and 40 C.F.R. § 2.203(b). Documents or information determined to be confidential by U.S. EPA will be afforded the protection specified in 40 C.F.R. Part 2, Subpart B. If no claim of confidentiality accompanies documents or information when they are submitted to U.S. EPA, or if U.S. EPA has notified Respondent that the documents or information are not confidential under the standards of Section 104(e)(7) of CERCLA or 40 C.F.R. Part 2, Subpart B, the public may be given access to such documents or information without further notice to Respondent.

30. Respondent may assert that certain documents, records and other information are privileged under the attorney-client privilege or any other privilege recognized by federal law. If the Respondent asserts such a privilege in lieu of providing documents, Respondent shall provide U.S. EPA with the following: 1) the title of the document, record, or information; 2) the date of the document, record, or information; 3) the name and title of the author of the document, record, or information; 4) the name and title of each addressee and recipient; 5) a description of the contents of the document, record, or information; and 6) the privilege asserted by Respondent. However, no documents, reports or other information created or generated pursuant to the requirements of this Settlement Agreement shall be withheld on the grounds that they are privileged.

31. No claim of confidentiality shall be made with respect to any data, including, but not limited to, all sampling, analytical, monitoring, hydro geologic, scientific, chemical, or engineering data, or any other documents or information evidencing conditions at or around the Site.

XII. RECORD RETENTION

32. Until 6 years after Respondent's receipt of U.S. EPA's notification pursuant to Section XXVII (Notice of Completion of Work), Respondent shall preserve and retain all non-identical copies of records and documents (including records or documents in electronic form) now in its possession or control or which come into its possession or control that relate in any manner to the performance of the Work or the liability of any person under CERCLA with respect to the Site, regardless of any corporate retention policy to the contrary. Until 6 years after Respondent's receipt of U.S. EPA's notification pursuant to Section XXVII (Notice of Completion of Work), Respondent shall also instruct its contractors and agents to preserve all documents, records, and information of whatever kind, nature or description relating to performance of the Work.

33. At the conclusion of this document retention period, Respondent shall notify U.S. EPA at least 60 days prior to the destruction of any such records or documents, and, upon request by U.S. EPA, Respondent shall deliver any such records or documents to U.S. EPA. Respondent may assert that certain documents, records and other information are privileged under the attorney-client privilege or any other privilege recognized by federal law. If Respondent asserts such a privilege, it shall provide U.S. EPA with the following: 1) the title of the document, record, or information; 2) the date of the document, record, or information; 3) the name and title of the author of the document, record, or information; 4) the name and title of each addressee and recipient; 5) a description of the subject of the document, record, or information; and 6) the privilege asserted by Respondent. However, no documents, reports or other information created or generated pursuant to the requirements of this Settlement Agreement shall be withheld on the grounds that they are privileged.

34. Respondent hereby certifies individually that to the best of its knowledge and belief, after thorough inquiry, it has not altered, mutilated, discarded, destroyed or otherwise disposed of any records, documents or other information (other than identical copies) relating to its potential liability regarding the Site since notification of potential liability by U.S. EPA or the State and that it has fully complied and will fully comply with any and all U.S. EPA requests for information pursuant to Sections 104(e) and 122(e) of CERCLA, 42 U.S.C. §§ 9604(e) and 9622(e), and Section 3007 of RCRA, 42 U.S.C. § 6927.

XIII. COMPLIANCE WITH OTHER LAWS

35. Respondent shall perform all actions required pursuant to this Settlement Agreement in accordance with all applicable local, state, and federal laws and regulations except as provided in Section 121(e) of CERCLA, 42 U.S.C. § 6921(e), and 40 C.F.R. §§ 300.400(e) and 300.415(j). In accordance with 40 C.F.R. § 300.415(j), all on-Site actions required pursuant to this Settlement Agreement shall, to the extent practicable, as determined by U.S. EPA, considering the exigencies of the situation, attain applicable or relevant and appropriate

requirements ("ARARS") under federal environmental or state environmental or facility siting laws. Respondent shall identify ARARS in the Work Plan subject to U.S. EPA approval.

XIV. EMERGENCY RESPONSE AND NOTIFICATION OF RELEASES

36. In the event of any action or occurrence during performance of the Work which causes or threatens a release of Waste Material from the Site that constitutes an emergency situation or may present an immediate threat to public health or welfare or the environment, Respondent shall immediately take all appropriate action. Respondent shall take these actions in accordance with all applicable provisions of this Settlement Agreement, including, but not limited to, the Health and Safety Plan, in order to prevent, abate or minimize such release or endangerment caused or threatened by the release. Respondent shall also immediately notify the OSC or, in the event of his/her unavailability, the Regional Duty Officer, Emergency Response Branch, Region 5 at (312) 353-2318, of the incident or Site conditions. In the event that Respondent fails to take appropriate response action as required by this Paragraph, and U.S. EPA takes such action instead, Respondent shall reimburse U.S. EPA all costs of the response action not inconsistent with the NCP pursuant to Section XVI (Payment of Response Costs).

37. In addition, in the event of any release of a hazardous substance from the Site, Respondent shall immediately notify the OSC at (312) 353-2318 and the National Response Center at (800) 424-8802. Respondent shall submit a written report to U.S. EPA within 7 business days after each release, setting forth the events that occurred and the measures taken or to be taken to mitigate any release or endangerment caused or threatened by the release and to prevent the reoccurrence of such a release. This reporting requirement is in addition to, and not in lieu of, reporting under Section 103(c) of CERCLA, 42 U.S.C. § 9603(c), and Section 304 of the Emergency Planning and Community Right-To-Know Act of 1986, 42 U.S.C. § 11004, *et seq.*

XV. AUTHORITY OF ON-SCENE COORDINATOR

38. The OSC shall be responsible for overseeing Respondent's implementation of this Settlement Agreement. The OSC shall have the authority vested in an OSC by the NCP, including the authority to halt, conduct, or direct any Work required by this Settlement Agreement, or to direct any other removal action undertaken at the Site. Absence of the OSC from the Site shall not be cause for stoppage of work unless specifically directed by the OSC.

XVI. PAYMENT OF RESPONSE COSTS

39. Payment for Past Response Costs.

a. Within 30 days after the Effective Date, Respondents shall pay to U.S. EPA $1,268.12 for Past Response Costs. Payment shall be made to U.S. EPA electronically by either Electronic Funds Transfer ("EFT") payment via the Automated Clearinghouse ("ACH") for U.S. currency, or payment on line at the U.S. Department of Treasury website (www.pay.gov) in accordance with current procedures that U.S. EPA Region 5 will provide Respondents, and shall be accompanied by a statement identifying the name and address of the party making payment, the Site name, U.S. EPA Region 5, Lindsay Light II Site 05YT OU 16 and, the U.S. EPA docket number for this action. Respondents shall: 1) complete Respondents' required bank form; 2) include Federal Reserve Bank of New York, ABA #021030004 on the bank form; 3) include the U.S. EPA Account #68010727on the form; 4) include the SWIFT address FRNYUS33, 33 Liberty Street, New York, NY, 10045; 5) include "D 68010727 Environmental Protection Agency" in Field Tag 4200 of the Fedwire message; and, 6) include a statement identifying the name and address of the party(is) making payment, the Site name, and U.S. EPA Region 5 and Lindsay Light II Site 05YT OU 16.

When the Past Response Costs identified in the above Paragraph are less than $10,000 in lieu of the described EFT method, payment may be made by certified or cashier's check made payable to "U.S. EPA Hazardous Substance Superfund." Each check, or a letter accompanying each check, shall identify the name and address of the party(ies) making payment, the Site name, U.S. EPA Region 5, the Site/Spill ID Lindsay Light II Site 05YT OU 16, and the U.S. EPA docket number for this action. and shall be sent to:

U.S. Environmental Protection Agency
Superfund Payments
Cincinnati Finance Center
P.O. Box 979076
St. Louis, Missouri 63197-9000

b. At the time of payment, Respondent shall send notice that such payment has been made to the Director, Superfund Division, U.S. EPA Region 5, 77 West Jackson Blvd., Chicago, Illinois, 60604-3590 and to Cathleen R. Martwick, Associate Regional Counsel, 77 West Jackson Boulevard, C-14J, Chicago, Illinois, 60604-3590.

c. The total amount to be paid by Respondent pursuant to Paragraph 39 shall be deposited in the Lindsay Light Site Special Account within the U.S. EPA Hazardous Substance Superfund to be retained and used to conduct or finance response actions at or in connection with the Lindsay Light Site, or to be transferred by U.S. EPA to the U.S. EPA Hazardous Substance Superfund.

40. Payments for Future Response Costs

a. Respondent shall pay U.S. EPA all Future Response Costs not inconsistent with the NCP. On a periodic basis, U.S. EPA will send Respondents a bill requiring payment that consists of an Itemized Cost Summary. Respondents shall make all payments within 30 calendar days of receipt of each bill requiring payment, except as otherwise provided in Paragraph 42 of this Settlement Agreement according to the following procedures.

i. If the payment amount demanded in the bill is for $10,000 or greater, payment shall be made to U.S. EPA electronically by either an Electronic Funds Transfer ("EFT"), via the Automated Clearinghouse for U.S. currency, or online payment via the U.S. Department of Treasury website (www.pay.gov) in accordance with procedures that U.S. EPA has provided to Respondents in Paragraph 39(a). Payment shall be accompanied by a statement identifying the name and address of the party(ies) making payment, the Site name, U.S. EPA Region 5, and the Site/Spill ID Lindsay Light II Site 05YT OU 16.

ii. If the amount demanded in the bill is $10,000 or less, the Settling Respondents may in lieu of the procedures in subparagraph 40(a)(i) make all payments required by this Paragraph by a certified or cashier's check or checks made payable to "EPA Hazardous Substance Superfund," referencing the name and address of the party making the payment, and the Site/Spill ID Lindsay Light II Site 05YT OU 16. Settling Respondents shall send the check(s) to:

U.S. Environmental Protection Agency
Superfund Payments
Cincinnati Finance Center
P.O. Box 979076
St. Louis, MO 63197-9000

b. At the time of payment, Respondents shall send notice that payment has been made to the Director, Superfund Division, U.S. EPA Region 5, 77 West Jackson Blvd., Chicago, Illinois, 60604-3590 and to Cathleen R. Martwick, Associate Regional Counsel, 77 West Jackson Boulevard, C-14J, Chicago, Illinois, 60604-3590.

c. The total amount to be paid by Respondents pursuant to Paragraph 39(a) shall be deposited in the Lindsay Light Site Special Account within the U.S. EPA Hazardous Substance Superfund to be retained and used to conduct or finance response actions at or in connection with the Site, or to be transferred by U.S. EPA to the U.S. EPA Hazardous Substance Superfund.

41. In the event that the payment for Past Response Costs is not made within 30 days of the Effective Date, or the payments for Future Response Costs are not made within 30 days of

Respondents' receipt of a bill. Respondents shall pay Interest on the unpaid balance. The Interest on Past Response Costs shall begin to accrue on the Effective Date and shall continue to accrue until the date of payment. The Interest on Future Response Costs shall begin to accrue on the date of the bill and shall continue to accrue until the date of payment. Payments of Interest made under this Paragraph shall be in addition to such other remedies or sanctions available to the United States by virtue of Respondents' failure to make timely payments under this Section, including but not limited to, payment of stipulated penalties pursuant to Section XIX (Stipulated Penalties).

42. Respondents may dispute all or part of a bill for Future Response Costs submitted under this Settlement Agreement, only if Respondents allege that U.S. EPA has made an accounting error, or if Respondents allege that a cost item is inconsistent with the NCP. If any dispute over costs is resolved before payment is due, the amount due will be adjusted as necessary. If the dispute is not resolved before payment is due, Respondents shall pay the full amount of the uncontested costs to U.S. EPA as specified in Paragraph 40 on or before the due date. Within the same time period, Respondents shall pay the full amount of the contested costs into an interest-bearing escrow account. Respondents shall simultaneously transmit a copy of both checks to the persons listed in Paragraph 40(b) above. Respondents shall ensure that the prevailing party or parties in the dispute shall receive the amount upon which they prevailed from the escrow funds plus interest within 20 calendar days after the dispute is resolved.

XVII. DISPUTE RESOLUTION

43. Unless otherwise expressly provided for in this Settlement Agreement, the dispute resolution procedures of this Section shall be the exclusive mechanism for resolving disputes arising under this Settlement Agreement. The Parties shall attempt to resolve any disagreements concerning this Settlement Agreement expeditiously and informally.

44. If Respondent objects to any U.S. EPA action taken pursuant to this Settlement Agreement, including billings for Response Costs, it shall notify U.S. EPA in writing of its objection(s) within 10 calendar days of such action, unless the objection(s) has/have been resolved informally. This written notice shall include a statement of the issues in dispute, the relevant facts upon which the dispute is based, all factual data. analysis or opinion supporting Respondent's position, and all supporting documentation on which such party relies. U.S. EPA shall provide its Statement of Position, including supporting documentation, no later than 10 calendar days after receipt of the written notice of dispute. In the event that these 10-day time periods for exchange of written documents may cause a delay in the work, they shall be shortened upon, and in accordance with, notice by U.S. EPA. The time periods for exchange of written documents relating to disputes over billings for response costs may be extended at the sole discretion of U.S. EPA. An administrative record of any dispute under this Section shall be maintained by U.S. EPA. The record shall include the written notification of such dispute, and the Statement of Position served pursuant to the preceding paragraph. Upon review of the

administrative record, the Director of the Superfund Division, U.S. EPA Region 5, shall resolve the dispute consistent with the NCP and the terms of this Settlement Agreement.

45. Respondent's obligations under this Settlement Agreement shall not be tolled by submission of any objection for dispute resolution under this Section. Following resolution of the dispute, as provided by this Section, Respondent shall fulfill the requirement that was the subject of the dispute in accordance with the agreement reached or with U.S. EPA's decision, whichever occurs.

XVIII. FORCE MAJEURE

46. Respondent agrees to perform all requirements of this Settlement Agreement within the time limits established under this Settlement Agreement, unless the performance is delayed by a *force majeure*. For purposes of this Settlement Agreement, a *force majeure* is defined as any event arising from causes beyond the control of Respondent, or of any entity controlled by Respondent, including but not limited to its contractors and subcontractors, which delays or prevents performance of any obligation under this Settlement Agreement despite Respondent's best efforts to fulfill the obligation. *Force majeure* does not include financial inability to complete the Work or increased cost of performance.

47. If any event occurs or has occurred that may delay the performance of any obligation under this Settlement Agreement, whether or not caused by a *force majeure* event, Respondent shall notify U.S. EPA orally within 24 hours of when Respondent first knew that the event might cause a delay. Within 7 calendar days thereafter, Respondent shall provide to U.S. EPA in writing an explanation and description of the reasons for the delay; the anticipated duration of the delay; all actions taken or to be taken to prevent or minimize the delay; a schedule for implementation of any measures to be taken to prevent or mitigate the delay or the effect of the delay; Respondent's rationale for attributing such delay to a *force majeure* event if Respondent intends to assert such a claim; and a statement as to whether, in the opinion of Respondent, such event may cause or contribute to an endangerment to public health, welfare or the environment. Failure to comply with the above requirements shall be grounds for U.S. EPA to deny Respondent an extension of time for performance. Respondent shall have the burden of demonstrating by a preponderance of the evidence that the event is a force majeure, the delay is warranted under the circumstances, and best efforts were exercised to avoid and mitigate the effects of the delay.

48. If U.S. EPA agrees that the delay or anticipated delay is attributable to a *force majeure* event, the time for performance of the obligations under this Settlement Agreement that are affected by the *force majeure* event will be extended by U.S. EPA for such time as is necessary to complete those obligations. An extension of the time for performance of the obligations affected by the *force majeure* event shall not, of itself, extend the time for performance of any other obligation. If U.S. EPA does not agree that the delay or anticipated

delay has been or will be caused by a *force majeure* event, U.S. EPA will notify Respondent in writing of its decision. If U.S. EPA agrees that the delay is attributable to a *force majeure* event, U.S. EPA will notify Respondent in writing of the length of the extension, if any, for performance of the obligations affected by the *force majeure* event.

XIX. STIPULATED PENALTIES

49. Respondent shall be liable to U.S. EPA for stipulated penalties in the amounts set forth in Paragraphs 50 and 51 for failure to comply with the requirements of this Settlement Agreement specified below, unless excused under Section XVIII (*Force Majeure*). "Compliance" by Respondent shall include completion of the activities under this Settlement Agreement or any work plan or other plan approved under this Settlement Agreement identified below in accordance with all applicable requirements of this Settlement Agreement within the specified time schedules established by and approved under this Settlement Agreement.

50. Stipulated Penalty Amounts - Work.

a. The following stipulated penalties shall accrue per violation per day for any noncompliance identified in Paragraph 50(c) (i) or (ii):

Violation Per Day	Period of Noncompliance
$ 100.00	1st through 14th day
$ 250.00	15th through 30th day
$ 500.00	31st day and beyond

b. The following stipulated penalties shall accrue per violation per day for any noncompliance identified in Paragraph 50(c)(iii):

1st Violation- Per Day Penalty	Period of Noncompliance
$ 100.00	1st day
$ 200.00	2nd day
$ 300.00	3rd through 5th day
$ 500.00	6th through 15th
$ 1,000.00	16th day and beyond

2nd or More Violation- Per Day Penalty	Period of Noncompliance
$ 300.00	1st day
$ 600.00	2nd day
$ 900.00	3rd through 5th day
$ 1,500.00	6th through 15th
$ 3,000.00	16th day and beyond

c. Compliance Milestones

i. Payment of Response Costs due 30 days after the Respondent's receipt of U.S. EPA's billing statement.

ii. Recording the Deed Restriction within 30 calendar days after completion of all Work required by Section VIII of this Settlement Agreement.

iii. Submit to U.S. EPA a draft map and a final revised map of the Uninvestigated Site Perimeter in accordance with the Work Plan.

iv. 72-hour advance notice of intrusive work in Uninvestigated Site Perimeter as required in Paragraph 25.

51. Stipulated Penalty Amounts - Reports. The following stipulated penalties shall accrue per violation per day for failure to submit timely or adequate reports or other written documents pursuant to Paragraphs 19 and 20:

Violation Per Day	Period of Noncompliance
$ 100.00	1st through 14th day
$ 200.00	15th through 30th day
$ 500.00	31st day and beyond

52. All penalties shall begin to accrue on the day after the complete performance is due or the day a violation occurs, and shall continue to accrue through the final day of the correction of the noncompliance or completion of the activity. However, stipulated penalties shall not accrue: 1) with respect to a deficient submission under Section VIII (Work to be Performed), during the period, if any, beginning on the 31st day after U.S. EPA's receipt of such submission until the date that U.S. EPA notifies Respondent of any deficiency; and 2) with respect to a decision by the Director of the Superfund Division, Region 5, under Paragraph 44 of Section XVII (Dispute Resolution), during the period, if any, beginning on the 21st day after U.S. EPA submits its written statement of position until the date that the Director of the Superfund Division issues a final decision regarding such dispute. Nothing herein shall prevent the simultaneous accrual of separate penalties for separate violations of this Settlement Agreement.

53. Following U.S. EPA's determination that Respondent has failed to comply with a requirement of this Settlement Agreement, U.S. EPA may give Respondent written notification of the failure and describe the noncompliance. U.S. EPA may send Respondent a written demand for payment of the penalties. However, penalties shall accrue as provided in the preceding Paragraph regardless of whether U.S. EPA has notified Respondent of a violation.

54. All penalties accruing under this Section shall be due and payable to U.S. EPA within 30 days of Respondent's receipt from U.S. EPA of a demand for payment of the penalties, unless Respondent invokes the dispute resolution procedures under Section XVII (Dispute Resolution). All payments to U.S. EPA under this Section shall be paid by certified or cashier's check made payable to "U.S. EPA Hazardous Substances Superfund," shall be mailed to U.S. Environmental Protection Agency, Program Accounting & Analysis Section, P.O. Box 70753, Chicago, Illinois 60673, shall indicate that the payment is for stipulated penalties, and shall reference the U.S. EPA Site/Spill ID Number 05YT OU 16, the U.S. EPA Docket Number, and the name and address of the party making payment. Copies of any check paid pursuant to this Section, and any accompanying transmittal letters, shall be sent to U.S. EPA as provided in Paragraph 40(b).

55. The payment of penalties shall not alter in any way Respondent's obligation to complete performance of the Work required under this Settlement Agreement.

56. Penalties shall continue to accrue during any dispute resolution period, but need not be paid until 20 days after the dispute is resolved by agreement or by receipt of U.S. EPA's decision.

57. If Respondent fails to pay stipulated penalties when due, U.S. EPA may institute proceedings to collect the penalties, as well as Interest. Respondent shall pay Interest on the unpaid balance, which shall begin to accrue on the date of demand made pursuant to Paragraph 54. Nothing in this Settlement Agreement shall be construed as prohibiting, altering, or in any way limiting the ability of U.S. EPA to seek any other remedies or sanctions available by virtue of Respondent's violation of this Settlement Agreement or of the statutes and regulations upon which it is based, including, but not limited to, penalties pursuant to Sections 106(b) and 122(*l*) of CERCLA, 42 U.S.C. §§ 9606(b) and 9622(*l*), and punitive damages pursuant to Section 107(c)(3) of CERCLA, 42 U.S.C. § 9607(c)(3). Provided, however, that U.S. EPA shall not seek civil penalties pursuant to Section 106(b) or 122(*l*) of CERCLA or punitive damages pursuant to Section 107(c)(3) of CERCLA for any violation for which a stipulated penalty is provided herein, except in the case of a willful violation of this Settlement Agreement. Should Respondent violate this Settlement Agreement or any portion hereof, U.S. EPA may carry out the required actions unilaterally, pursuant to Section 104 of CERCLA, 42 U.S.C. § 9604, and/or may seek judicial enforcement of this Settlement Agreement pursuant to Section 106 of CERCLA, 42 U.S.C. § 9606. Notwithstanding any other provision of this Section, U.S. EPA may, in its unreviewable discretion, waive in writing any portion of stipulated penalties that have accrued pursuant to this Settlement Agreement.

XX. COVENANT NOT TO SUE BY U.S. EPA

58. In consideration of the actions that will be performed and the payments that will be made by Respondent under the terms of this Settlement Agreement, and except as otherwise specifically provided in this Settlement Agreement, U.S. EPA covenants not to sue or to take administrative action against Respondent pursuant to Sections 106 and 107(a) of CERCLA, 42 U.S.C. §§ 9606 and 9607(a), for the Work, Past Response Costs, and Future Response Costs. This covenant not to sue shall take effect upon receipt by U.S. EPA of the Past Response Costs due under Section XVI of this Settlement Agreement and any Interest or Stipulated Penalties due for failure to pay Past Response Costs as required by Sections XVI and XIX of this Settlement Agreement. This covenant not to sue is conditioned upon the complete and satisfactory performance by Respondent of its obligations under this Settlement Agreement, including, but not limited to, payment of Future Response Costs pursuant to Section XVI. This covenant not to sue extends only to Respondent and does not extend to any other person.

XXI. RESERVATIONS OF RIGHTS BY U.S. EPA

59. Except as specifically provided in this Settlement Agreement, nothing herein shall limit the power and authority of U.S. EPA or the United States to take, direct, or order all actions necessary to protect public health, welfare, or the environment or to prevent, abate, or minimize an actual or threatened release of hazardous substances, pollutants or contaminants, or hazardous or solid waste on, at, or from the Site. Further, nothing herein shall prevent U.S. EPA from seeking legal or equitable relief to enforce the terms of this Settlement Agreement. U.S. EPA also reserves the right to take any other legal or equitable action as it deems appropriate and necessary, or to require the Respondent in the future to perform additional activities pursuant to CERCLA or any other applicable law.

60. The covenant not to sue set forth in Section XX above does not pertain to any matters other than those expressly identified therein. U.S. EPA reserves, and this Settlement Agreement is without prejudice to, all rights against Respondent with respect to all other matters, including, but not limited to:

a. claims based on a failure by Respondent to meet a requirement of this Settlement Agreement;

b. liability for costs not included within the definition of Response Costs;

c. liability for performance of response action other than the Work;

d. criminal liability;

e. liability for damages for injury to, destruction of, or loss of natural resources, and for the costs of any natural resource damage assessments; and

f. liability arising from the past, present. or future disposal, release or threat of release of Waste Materials outside of the Site.

XXII. COVENANT NOT TO SUE BY RESPONDENT

61. Respondent covenants not to sue and agrees not to assert any claims or causes of action against the United States, or its contractors or employees, with respect to the Work, Response Costs, or this Settlement Agreement, including, but not limited to:

a. any direct or indirect claim for reimbursement from the Hazardous Substance Superfund established by 26 U.S.C. § 9507, based on Sections 106(b)(2), 107, 111, 112, or 113 of CERCLA, 42 U.S.C. §§ 9606(b)(2), 9607, 9611, 9612, or 9613, or any other provision of law;

b. any claim arising out of response actions at or in connection with the Site, including any claim under the United States Constitution, the Illinois State Constitution, the Tucker Act, 28 U.S.C. § 1491. the Equal Access to Justice Act, 28 U.S.C. § 2412, as amended, or at common law; or

c. any claim against the United States pursuant to Sections 107 and 113 of CERCLA, 42 U.S.C. §§ 9607 and 9613, relating to the Site.

These covenants not to sue shall not apply in the event the United States brings a cause of action or issues an order pursuant to the reservations set forth in Paragraphs 59 (b), (c), and (e) - (f), but only to the extent that Respondent's claims arise from the same response action, response costs, or damages that the United States is seeking pursuant to the applicable reservation.

62. Nothing in this Agreement shall be deemed to constitute approval or preauthorization of a claim within the meaning of Section 111 of CERCLA, 42 U.S.C. § 9611, or 40 C.F.R. § 300.700(d).

XXIII. OTHER CLAIMS

63. By issuance of this Settlement Agreement, the United States and U.S. EPA assume no liability for injuries or damages to persons or property resulting from any acts or omissions of Respondent. The United States or U.S. EPA shall not be deemed a party to any contract entered into by Respondent or its directors, officers, employees, agents, successors, representatives, assigns, contractors, or consultants in carrying out actions pursuant to this Settlement Agreement.

64. Except as expressly provided in Section XX (Covenant Not to Sue by U.S. EPA), nothing in this Settlement Agreement constitutes a satisfaction of or release from any claim or cause of action against Respondent or any person not a party to this Settlement Agreement, for any liability such person may have under CERCLA, other statutes, or common law, including but not limited to any claims of the United States for costs, damages and interest under Sections 106 and 107 of CERCLA, 42 U.S.C. §§ 9606 and 9607.

65. No action or decision by U.S. EPA pursuant to this Settlement Agreement shall give rise to any right to judicial review, except as set forth in Section 113(h) of CERCLA, 42 U.S.C. § 9613(h).

XXIV. CONTRIBUTION

66. a. The Parties agree that this Settlement Agreement constitutes an administrative settlement for purposes of Section 113(f)(2) of CERCLA, 42 U.S.C. § 9613(f)(2), and that Respondent is entitled, as of the Effective Date, to protection from contribution actions or claims as provided by Sections 113(f)(2) and 122(h)(4) of CERCLA, 42 U.S.C. §§ 9613(f)(2) and 9622(h)(4), for "matters addressed" in this Settlement Agreement. The "matters addressed" in this Settlement Agreement are the Work and Response Costs.

b. The Parties agree that this Settlement Agreement constitutes an administrative settlement for purposes of Section 113(f)(3)(B) of CERCLA, 42. U.S.C. § 9613(f)(3)(B), pursuant to which the Respondent has, as of the Effective Date, resolved its liability to the United States for the Work and Response Costs.

c. Nothing in this Settlement Agreement precludes the United States or Respondent from asserting any claims, causes of action, or demands for indemnification, contribution, or cost recovery against any persons not parties to this Settlement Agreement. Nothing herein diminishes the right of the United States, pursuant to Section 113(f)(2)and (3), 42 U.S.C. § 9613(f)(2) and (3), to pursue any such persons to obtain additional response costs or response action, and to enter into settlements that give rise to contribution protection pursuant to Section 113(f)(2) of CERCLA, 42 U.S.C. § 9613(f)(2).

XXV. INDEMNIFICATION

67. Respondent shall indemnify, save and hold harmless the United States, its officials, agents, contractors, subcontractors, employees and representatives from any and all claims or causes of action arising from, or on account of, negligent or other wrongful acts or omissions of Respondent, its officers, directors, employees, agents, contractors, or subcontractors, in carrying out actions pursuant to this Settlement Agreement. In addition, Respondent agrees to pay the United States all costs incurred by the United States, including but not limited to attorneys fees

and other expenses of litigation and settlement, arising from or on account of claims made against the United States based on negligent or other wrongful acts or omissions of Respondent, its officers, directors, employees, agents, contractors, subcontractors and any persons acting on their behalf or under their control, in carrying out activities pursuant to this Settlement Agreement. The United States shall not be held out as a party to any contract entered into by or on behalf of Respondent in carrying out activities pursuant to this Settlement Agreement. Neither Respondent nor any such contractor shall be considered an agent of the United States. The Federal Tort Claims Act (28 U.S.C. §§ 2671, 2680) provides coverage for injury or loss of property, or injury or death caused by the negligent or wrongful act or omission of an employee of U.S. EPA while acting within the scope of his or her employment, under circumstances where U.S. EPA, if a private person, would be liable to the claimant in accordance with the law of the place where the act or omission occurred.

68. The United States shall give Respondent notice of any claim for which the United States plans to seek indemnification pursuant to this Section and shall consult with Respondent prior to settling such claim.

69. Respondent waives all claims against the United States for damages or reimbursement or for set-off of any payments made or to be made to the United States, arising from or on account of any contract, agreement, or arrangement between Respondent and any person for performance of Work on or relating to the Site, including, but not limited to, claims on account of construction delays. In addition, Respondent shall indemnify and hold harmless the United States with respect to any and all claims for damages or reimbursement arising from or on account of any contract, agreement, or arrangement between Respondent and any person for performance of Work on or relating to the Site, including, but not limited to, claims on account of construction delays.

XXVI. MODIFICATIONS

70. The OSC may make modifications to any plan or schedule in writing or by oral direction. Any oral modification will be memorialized in writing by U.S. EPA promptly, but shall have as its effective date the date of the OSC's oral direction. Any other requirements of this Settlement Agreement may be modified in writing by mutual agreement of the parties.

71. If Respondent seeks permission to deviate from any approved work plan or schedule, Respondent's Project Coordinator shall submit a written request to U.S. EPA for approval outlining the proposed modification and its basis. Respondent may not proceed with the requested deviation until receiving oral or written approval from the OSC pursuant to Paragraph 70.

72. No informal advice, guidance, suggestion, or comment by the OSC or other U.S. EPA representatives regarding reports, plans, specifications, schedules, or any other writing

submitted by Respondent shall relieve Respondent of its obligation to obtain any formal approval required by this Settlement Agreement, or to comply with all requirements of this Settlement Agreement, unless it is formally modified.

XXVII. NOTICE OF COMPLETION OF WORK

73. When U.S. EPA determines, after U.S. EPA's review of the Final Report, that all Work has been fully performed in accordance with this Settlement Agreement, with the exception of any continuing obligations required by this Settlement Agreement, including, *e.g.*, post-removal site controls, payment of Response Costs, and record retention, U.S. EPA will provide written notice to Respondent. If U.S. EPA determines that any such Work has not been completed in accordance with this Settlement Agreement, U.S. EPA will notify Respondent, provide a list of the deficiencies, and require that Respondent modifies the Work Plan if appropriate in order to correct such deficiencies. Respondent shall implement the modified and approved Work Plan and shall submit a modified Final Report in accordance with the U.S. EPA notice. Failure by Respondent to implement the approved modified Work Plan shall be a violation of this Settlement Agreement.

XXVIII. NOTICES AND SUBMISSIONS

74. Whenever, under the terms of this Agreement, notice is required to be given or a document is required to be sent by one Party to another, it shall be directed to the individuals at the addresses specified below, unless those individuals or their successors give notice of a change to the other Parties in writing. Written notice as specified herein shall constitute complete satisfaction of any written notice requirement of this Agreement with respect to U.S. EPA and Respondent.

As to U.S. EPA:

Cathleen Martwick
Mary Fulghum
Associate Regional Counsels
U.S. EPA (C-14J)
77 W. Jackson Blvd.
Chicago, Illinois 60604

Verneta J. Simon
On-Scene Coordinator
U.S. EPA (SE-6J)
77 W. Jackson Blvd.
Chicago, Illinois 60604

Comptroller's Office
U.S. EPA (MF-10J)
77 W. Jackson Blvd.
Chicago, Illinois 60604

As to Respondent:

Doug Porter
Ronald McDonald House Charities of
Chicagoland and Northwest Indiana
1900 Spring Road, # 310
Oak Brook, Illinois 60523

Vincent Oleszkiewicz
Duane Morris
190 S. LaSalle Street, Suite 3600
Chicago, Illinois 60603

XXIX. SEVERABILITY/INTEGRATION/EXHIBIT

75. If a court issues an order that invalidates any provision of this Settlement Agreement or finds that Respondent has sufficient cause not to comply with one or more provisions of this Settlement Agreement, Respondent shall remain bound to comply with all provisions of this Settlement Agreement not invalidated or determined to be subject to a sufficient cause defense by the court's order.

76. This Settlement Agreement and its Exhibits constitute the final, complete and exclusive agreement and understanding among the Parties with respect to the settlement embodied in this Settlement Agreement. The parties acknowledge that there are no representations, agreements or understandings relating to the settlement other than those expressly contained in this Settlement Agreement. The following Exhibit is incorporated into this Settlement Agreement:

Exhibit A Site Map.

XXX. EFFECTIVE DATE

77. This Settlement Agreement shall be effective upon signature of this Settlement by the Director, Superfund Division, U.S. EPA Region 5.

The undersigned representative of Respondent certifies that he is fully authorized to enter into the terms and conditions of this Settlement Agreement and to bind the party he represents to this document.

Agreed this 3rd day of December, 2010.

For Respondent: Ronald McDonald House Charities of Chicagoland and Northwest Indiana

By: _____
Doug Porter
Chief Executive Officer

IN THE MATTER OF:

Lindsay Light II, Operable Unit 16
Chicago, Illinois

It is so ORDERED and Agreed this 9th day of December, 2010.

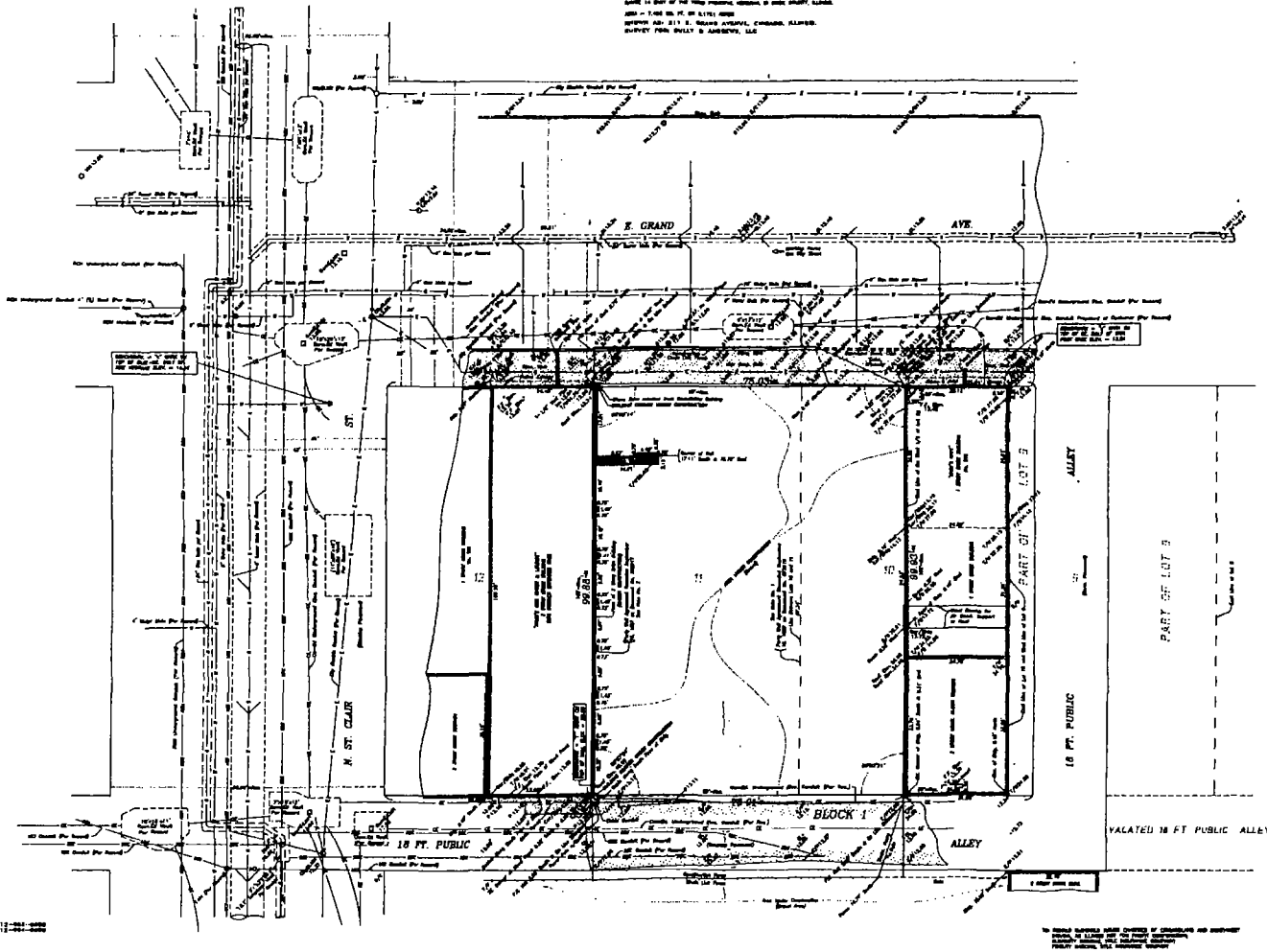
BY: _____
Richard C. Karl, Director
Superfund Division
United States Environmental Protection Agency
Region 5

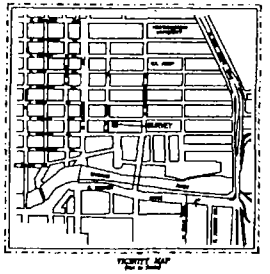
NATIONAL SURVEY SERVICE, INC.

ALTA/ACSM LAND TITLE SURVEY

Plat of Survey

EXHIBIT A





IMPORTANT

GRAPHIC SCALE

NATIONAL SURVEY SERVICE, INC.
PROFESSIONAL LAND SURVEYORS

Appendix B

Radiological Survey Results Report – October 2010

Prepared for:
Ronald McDonald House Charities
Oak Brook, Illinois

Radiological Survey Results for

211 E. Grand Avenue
Chicago, Illinois

AECOM
750 Corporate Woods Pkwy
Vernon Hills, IL 60061

847-279-2500 tel
847-279-2510 fax

October 11, 2010

Mr. Doug Porter, CEO
Ronald McDonald House Charities of Chicagoland & Northwest Indiana
1900 Spring Road
Suite 310
Oak Brook, IL USA

Subject: **Radiological Survey Results for 211 E. Grand Avenue in Chicago, Illinois, AECOM, Inc. Project No. 60157402**

Dear Mr. Porter:

The enclosed report summarizes the findings of the radiological down-hole survey and surface radiological survey completed by AECOM at the above referenced property. Should you have any questions, please feel free to contact us at 847-279-2500.

Regards,

Jaclyn C. Webb
Assistant Project Engineer

Steve C. Kornder, Ph. D.
Senior Geochemist

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1.0 Introduction

The property, 211 E Grand Avenue (Site) is located in an area of reclaimed land where fill material was placed along the Lake Michigan shoreline starting in the 1860's. This area of Chicago is commonly referred to as Streeterville. Recent developments in the Streeterville area of Chicago encountered radiologically-impacted soil/fill. The radiologically-impacted fill material was originally generated as a byproduct from a former gas mantle production that used thorium nitrate in its manufacturing process. The manufacturing operations were located at 316 East Illinois Street and 161 E. Grand Street in Chicago, Illinois. These manufacturing operations were conducted from the early 1900s through the early 1930s. The radiological impacts consist of elevated concentrations of thorium in the near surface fill soils in the vicinity of the former Lindsay Light site. Due to the proximity of this property to the manufacturing site and documented cleanups at other properties in the Streeterville area, screening for thorium-impacted fill soil is warranted where invasive work is planned. Furthermore, the U. S. Environmental Protection Agency (USEPA), which has oversight authority for radiologically-impacted sites, requests that radiological surveys be completed prior to and during site development.

2.0 Radiological Screening Scope

2.1 Site Background

The Site is approximately 75-feet wide and 100-feet deep. It is bounded by East Grand Avenue on the north, a public alley on the south and brick and/or concrete block buildings immediately adjacent to the eastern and western property lines (refer to Appendix A). Prior to the recent demolition activities completed in April 2010, the Site was occupied by a four story commercial brick building with a full basement. The building was situated in a north-south orientation and abutted the southern, northern and western property lines, and was approximately 52-feet wide by 100-feet. This structure was likely built in 1887 according to the Phase I completed in March of 2008 by Gabriel Environmental Services. As such, the building was built approximately 15 years prior to the founding of the Lindsay Light Company in Streeterville. Therefore, the presence of Lindsay Light thorium material below the basement floor and building footings would not be anticipated.

Additionally, a two story brick building occupied the southeast corner of the Site. This structure was approximately 24-feet wide and 40-feet deep and abutted the alley to the south as well as the eastern property line. This structure reportedly did not have a basement. North of this two story building was a paved loading dock driveway approximately 24-feet wide and 60-feet deep that was accessed from East Grand Ave. Thus, the eastern one-third of the Site, which measures 24 feet by 100 feet, appears to have been previously unexcavated.

On November 11, 2009 the USEPA conducted a walk-over radiation survey of the Site including the loading dock area and basement, which included four test pits that had been installed to obtain structural information. Results from the survey were summarized in correspondence from the USEPA dated November 16, 2009 (Appendix B). According to the USEPA, the results did not indicate the potential presence of radiologically-impacted fill materials in either the alley or the basement. In a letter date April 28, 2010, the USEPA indicated that based on the survey results and age of the building, that it was unlikely that subsurface thorium contamination would be present. In the same letter the USEPA also reiterated a request to perform radiological monitoring of the planned geotechnical borings and indicated a concern that contamination may

be present off-site below the asphalt in the alley to the south. USEPA indicated that radiation monitoring must be conducted if activities will disturb the alley subsurface (i.e., foundation construction, utilities, etc.).

2.2 Down-hole Project Scope

The down-hole radiological scope included the screening of three (3) geotechnical borings and four (4) shallow (about 5-foot deep) borings south of the Site within the public alley. Two of the three geotechnical borings (SB-10-2 and SB-10-3) were located within in the boundary of the former basement, which had been filled with debris (brick and concrete) from the demolition of the building. The primary purpose of the borings in the alley was to determine if radiologically-impacted fill soil was present per the request of the USEPA.

In July 2010, the three geotechnical borings were installed, but the borings in the alley could not be completed due to the presence of underground utilities. Two of the borings (P3 and P4) were moved north and completed just inside the property line. However, the other two borings were not completed since the primarily intent was to assess fill soil presence in the alley and moving them to the edge of the alley would limit their ability the assess alley fill material. Thus, down-hole radiological surveys were completed at five of the borings to evaluate the potential presence of radiological materials. Table 1 presents the down-hole radiological screening results. A drawing showing the location of the borings is included in Appendix C.

2.2.1 Instrument Calibration

The equipment used for the down-hole radiation screening included Ludlum 2221 Rate Meter-Scaler and a Ludlum 44-10 2-inch x 2-inch Sodium-Iodide (NaI) Probe with a 1-inch thick lead end cap. The equipment calibration was performed on November 9, 2009 under the direction of Glenn Huber (Certified Health Physicist) of Stan A Huber, Inc. (Huber). The down-hole probe and instrument configuration was field calibrated in August 2009. The Ludlum 44-10 2-inch x 2-inch NaI Probe and the Ludlum 2221 Rate Meter-Scaler were calibrated in drums at the Tronox West Chicago Rare Earths Facility using a configuration similar to that anticipated in the field (i.e., 3-inch PVC pipe). The down-hole instrument field calibration was performed to obtain a cutoff threshold value equivalent to the USEPA cleanup limit of 7.1 pCi/g total radium. The results of the instrument and down-hole field calibration are summarized in the table below.

Ludlum 2221 Serial #	Probe PR 44-10 Serial #	Count Equivalent to 7.1 pCi/gm Total Radium		
		Surface – Unshielded (1 min. count)	Surface – Shielded (1 min. count)	Down-hole Shielded* (30 sec. count)
176944	098198	17,522	6,052	12,479

Notes: * - 1" lead end cap used as shield for down-hole calibrations.

The threshold value of 12,479 counts/30-seconds equivalent to the USEPA cleanup limit of 7.1 pCi/g total radium was determined by using the linear relationship of the data obtained from the drums. Three 30-second count results were obtained at each drum. The average of these values was plotted against the known pCi/g value of each drum. An equation was developed from the linear regression trendline along with an R^2 value. The R^2 value illustrates how well the linear regression line approximates the data points. An R^2 of 1.0 indicates a perfect fit. The trend line resulted in an R^2 of 0.9998, which indicates a near perfect fit for the data obtained during calibration.

To determine the instrument threshold equivalent to the USEPA cleanup level, the linear regression equation for the data with the 1-inch lead end-cap shielded probe was used. This end-cap shielded probe configuration was utilized for the down-hole measurements since the 1-inch end-cap maximizes the lateral sensitivity of the probe. The units of the x and y variables in the equation are pCi/g and counts per 30-seconds, respectively. The slope of the equation represents the change in instrument response to the change in total radium concentration, while the y-intercept (i.e., 3,628 counts/30-seconds) represents the effects of other sources of

background radiation on the probe. The sources and amount of background radiation may vary with specific site conditions.

The USEPA cleanup threshold in Streeterville for radiological impacts is 7.1 pCi/g total radium (5 pCi/g above the USEPA background value of 2.1 pCi/g total radium set for Streeterville). Since background radiation from sources other than radium may vary from site to site, AECOM generally utilizes the most conservative approach and omits the addition of the y-intercept (i.e., value of 3,628 counts/30-seconds). Therefore, the value of 7.1 pCi/g is multiplied by the slope of the equation and results in an instrument cleanup threshold value of 12,479 counts/30-seconds. This creates a conservative approach in attempting to identify radiological anomalies during the down-hole surveys.

It should be noted that AECOM believes that that a conservative approach is warranted for down-hole screening activities because the volume of material being screened is small compared to surface and/or lift screening activities that generally screen 100% of the exposed surface. Generally, because of the shielding effects of soil, the NaI probe surveys only about a 1½ foot radius around the borehole. When evaluating down-hole data it has also been our experience that anomalous results, which do not exceed the field instrumentation threshold, may indicate the potential presence of radiologically-impacted material outside of the immediate vicinity of the boring. Anomalous results are generally regarded as gamma readings that are appreciably greater than the preceding or successive measurements. While these reading may not exceed the field instrumentation cutoff threshold, the anomalous readings generally appear as or cause a bimodal distribution when the individual results are plotted on a histogram.

2.2.2 Down-hole Survey Results

The down-hole radiation surveys for the five soil borings were conducted between August 24 and September 3, ~~2009~~ 2010. All borings were drilled with a nominal 4.25-inch diameter hollow stem auger. A 3-inch diameter Schedule 40 PVC casing was installed in each hole, and gamma readings were taken in 6-inch increments extending to the native soil. The gamma logging was conducted with a Ludlum 2221 rater-scaler and a 2 x 2 NaI probe. The probe was equipped with a 1-inch thick lead end cap at the lower end of the probe to maximize the lateral sensitivity of the probe and minimize the influence of deeper material on the gamma readings.

Surface screening of the spoil generated and the down-hole monitoring revealed no indication of soils above the specified clean-up threshold established by the USEPA for the Streeterville area of Chicago. Table 1 presents a summary of the down-hole gamma readings observed for each boring during the survey. AECOM personnel were responsible for the survey results collected during geotechnical drilling. The gamma count potentially indicative of the 7.1 pCi/g USEPA threshold is 12,479 counts/30-seconds shielded with a 1-inch lead end cap. Survey results ranged from a minimum of 1,805 counts/30-seconds to a maximum of 15,379 counts/30-seconds. Figure 1 displays the results of each boring as well as the USEPA threshold. Figure 2 is a histogram of the survey results and displays essentially a bell-shaped distribution centered at about 3,000 counts/30-seconds with only a couple anomalous outliers.

From review of Table 1, it is apparent that the results of the two borings (SB-10-2 and SB-10-3) completed within the demolition debris were well below the USEPA cleanup threshold as were the results at the base of the former basement slab. Specifically, the down-hole gamma results for the former basement area ranged from 2,167 to 3,742 counts/30-seconds. As previously indicated, the presence of Lindsay Light thorium material below the basement floor and/or building footings would not be anticipated since the building was built approximately 15 years prior to the founding of the Lindsay Light Company in Streeterville.

The only anomalous readings observed were at boring SB-10-1. Readings between 1.5 to 3.5 feet were slightly elevated and the reading observed at 2.5-feet (15,379 counts/30-seconds) exceeded the instrumentation threshold value of 12,479 counts/30-seconds based on the USEPA cleanup value of 7.1 pCi/g total radium. SB-10-1 is located in former loading dock driveway in the eastern one-third of the Site which

does not appear to have been previously excavated. Additional investigation was performed, specifically the excavation of a sallow test pit in the vicinity of the elevated gamma readings.

2.3 Test Pitting and Surface Screening

The SB-10-1 boring is located in a former drive way and/or loading dock area (refer to Appendix C), which was not included within the building footprint. Thus, there is a potential for fill materials to be present in this area. Since there was only one measurement that was slightly over the USEPA threshold, there was a possibility that the meter was reading natural radioactivity present in brick and/or granite paver materials. As such, a plan to visually examine the materials contributing to the elevated gamma reading was coordinated with a testing pitting effort to observe the foundations of the adjacent structures on September 16, 2010.

The excavation of the test pits was performed using a bobcat. The radiological test pit was located in the vicinity of boring SB-10-1. The pit was located about 10-15 feet south of the East Grand Avenue sidewalk. Initial surface measurements indicated gamma reading that ranged from 14,000 to 16,000 counts per minute (cpm), which is below the unshielded Ludlum threshold value of 17,522 cpm that is equivalent to the USEPA cleanup value of 7.1 pCi/g total radium. As excavation proceeded, the gamma reading increased to about 17,000 cpm at a depth of about 2-feet, but did not exceed the USEPA cleanup threshold. Excavation continued in this area until a depth of about 2.5-feet with gamma reading typically in the 15,000 to 17,000 cpm range.

The higher readings appeared to be occurring toward the southern edge of the test pit. Therefore, the test pit was extended approximately 10-feet farther south. In this southern section of the test pit the readings ranged from 19,000 to 21,000 cpm at a depth of about 18-inches. However, fill material removed from the test pit remained below the USEPA cleanup threshold. The fill soil in the test pit at the base of the excavation, where elevated readings were observed, consisted of tan to black colored sand to gravel size material with cinders, ash and some brick/concrete debris. No pavers or appreciable brick material was present. When it was apparent that material above the USEPA cleanup threshold was present, excavation activities were halted to avoid the excavation of impacted material and the test pit was backfilled.

Two geotechnical test pits along the eastern property boundary were completed to observe the foundations of the buildings for foundation design purposes. The first test pit (geotech #1) was dug approximately 35-feet south of the East Grand Avenue sidewalk. The maximum depth was approximately 4-feet. Gamma readings for the test pit ranged from 11,000 to 14,000 cpm. A maximum of 16,000 cpm was observed just below the surface on the western edge of the test pit approximately 10-feet from the eastern property boundary. No gamma readings were observed above the instrument threshold of 17,522 cpm. The second test pit (geotech #2) was located approximately 65-feet south of the sidewalk with a maximum depth of about 4-feet. Gamma readings for the test pit ranged from 11,000 to 13,500 cpm and a maximum of about 14,300 cpm. No indication of radiologically-impacted fill was present.

2.3.1 Radiological Surface Screening of the Former Loading Dock Driveway

After back filling of the boring test pit, a radiological surface survey of the remainder of the former drive was performed. It is estimated that the former drive was about 24-feet wide and extended south about 60-feet from the sidewalk on East Grand Avenue. Surface screening completed on September 16, 2010 indicated an area of elevated readings is present along the western edge of the drive near the former building foundation. The first ten feet south of the side walk had gamma readings that ranged from 10,100 to 13,000 cpm with a maximum of 15,500 cpm (versus a Ludlum threshold value of 17,522 cpm). Excluding the western edge of the drive, gamma readings in the remainder of the drive (next 50-feet) generally ranged from 13,500 cpm to 16,500 cpm. The lowest readings were generally along the eastern property boundary.

The highest gamma reading occurred toward the western edge of the former drive. The surface reading in the western section ranged from 15,400 to 20,700 cpm with a maximum of 52,000 cpm about 41 feet south of the sidewalk and 17 feet west of the eastern property boundary. Hand excavation of a small area to a depth of about 1-foot at the highest surface reading indicated a maximum of 106,000 cpm versus the instrument

threshold of 17,522 cpm. A sample of the material at this depth was retained for future potential analysis. Although readings at the surface were slightly elevated, it appeared the surface material in the western portion of the drive may not be above the cleanup threshold and that the instrument may be measuring elevated/impacted material below the surface. This would be consistent with the readings recorded at boring SB-10-1.

In summary, an area just below the current surface (about 6 by 40 feet and parallel to the former building foundation) on the western side of the former loading dock driveway exhibits slightly elevated surface gamma readings that appear indicative of soil and/or fill impacted with Lindsay Light thorium material. The approximate extent of the elevated surface gamma readings is shown on the boring log location drawing in Appendix C. Visual examination in the area of the elevated gamma measurements indicated that the readings were inconsistent with natural materials such as brick and/or granite pavers. Based on the limited amount of delineation conducted, it does not appear that the radiologically-impacted material is more than a couple of feet in thickness, but additional investigation would be necessary to quantify the extent and volume of material.

2.4 Radiological Screening in the Alley

A surface survey of the northern half of the alley was completed on September 16, 2010. The alley south of the site is currently asphalt paved. The down-hole survey within the alley could not be surveyed because of buried utilities. Three surface screening passes each approximately a meter wide were conducted in order to cover the northern half of the alley immediately adjacent to the site. The surface gamma readings typically ranged from 7,200 to 9,600 cpm. The maximum value observed was 11,500 cpm versus the instrument threshold of 17,522 cpm base on the USEPA cleanup limit of 7.1 pCi/g total radium. The maximum reading occurred at the centerline of the alley approximately 10-feet west of a line projected along the eastern property boundary. In any case, no indications of elevated gamma readings were observed. However, shielding due to the presence of pavement limits the depth of this surface screening.

3.0 Conclusions

Three geotechnical and two shallow exploratory borings were completed to evaluate the potential for radiological impacts during the geotechnical subsurface assessment. Soil boring SB-10-1 indicates that the historical fill at the Site has a thickness of about 7-8 feet, at which point native lake sands were encountered. The water table appears to be located at approximately 12 feet below ground surface. Down-hole radiological surveys were conducted in two 5-foot borings just within the southern property boundary and three geotechnical borings to a depth of about 7-8 feet or approximately the start of the native sand.

Down-hole radiological surveying of the two geotechnical boring located within the footprint of the building with the full basement did not indicate the presence of radiologically-impacted fill material. This data is consistent with USEPA's conclusion that radiologically-impacted material is unlikely to be present beneath the structure given that the building predates the Lindsay Light Company.

The remaining geotechnical boring (SB-10-1) was located in the eastern one-third of the Site in an area that appears to have been previously unexcavated. This unexcavated area measures 24 feet by 100 feet and was occupied by loading dock driveway and 2-story brick building without a basement. With one exception the gamma results at boring SB-10-1 were below the instrument threshold of 12,479 counts/30-seconds, which is equivalent to the USEPA cleanup value of 7.1 pCi/g. This maximum value of 15,379 counts/30-seconds cpm was observed at a depth of 2.5 feet. As a result, the area was further investigated via a test pit.

The test pit excavated for radiological screening near boring SB-10-1 located in the former drive area suggests that an area just below the current surface exhibits elevated gamma readings. The readings observed appear

indicative of fill soil impacted with Lindsay Light thorium material and visual examination in the area of the elevated gamma measurements indicated that the readings were inconsistent with natural materials such as brick and/or granite pavers.

Surface gamma measurements indicate the size of the area with elevated readings is about 6 by 40 feet and that is confined to the area of east of the former four story building. The area is east of the former building foundation on the western side of the former loading dock driveway. Based on the limited amount of delineation conducted, it appears that the radiologically-impacted material is likely a couple of feet in thickness, but additional investigation would be necessary to quantify the extent and volume of material above the USEPA cleanup threshold.

Radiological screening at two geotechnical test pits excavated along the eastern property boundary in the former drive did not indicate gamma readings above the USEPA cleanup threshold. Thus, the surface gamma readings in the former loading dock drive and the information from the geotechnical test pits suggests that radiologically-impacted fill soil is not present along the eastern property boundary.

Finally, a radiological surface survey of the alley did not observe elevated gamma readings. However, shielding due to the presence of pavement limits the depth of this surface screening.

Tables

Table 1:
211 East Grand Avenue
Down-hole Gamma Results
July 2010
USEPA Threshold of 12,479 Counts per 30-seconds

Depth (ft)	Boring Location						
	SB-10-1	SB-10-2	SB-10-3	P-1	P-2	P-3	P-4
0.0	2794	2167	2183	Boring not installed due to utilities	Boring not installed due to utilities	2005	1805
0.5	4855	2743	2565			2630	2140
1.5	7295	2913	2700			3042	2297
2.0	11684	2884	2897			3026	2552
2.5	15379	2890	2832			3037	2485
3.0	11109	3014	2794			2891	2978
3.5	5677	3168	2739			2855	3367
4.0	4003	3319	2803			2831	3618
4.5	2752	3548	2667				
5.0	2151	3487	2546				
5.5	1835	3442	2608				
6.0	2452	3488	2653				
6.5	2951	3632	2610				
7.0	2491	3742	2609				
7.5	2197	3735	2444				
8.0	1987						
8.5	1975						
Native Sand	7	8	10				
Water Table	14.5	12.5	10				
Minimum	1835	2167	2183			2005	1805
Maximum	15379	3742	2897			3042	3618
Average	4917	3211	2643			2790	2655

Figures

Figure 1
Down-hole Gamma Readings
211 East Grand Avenue

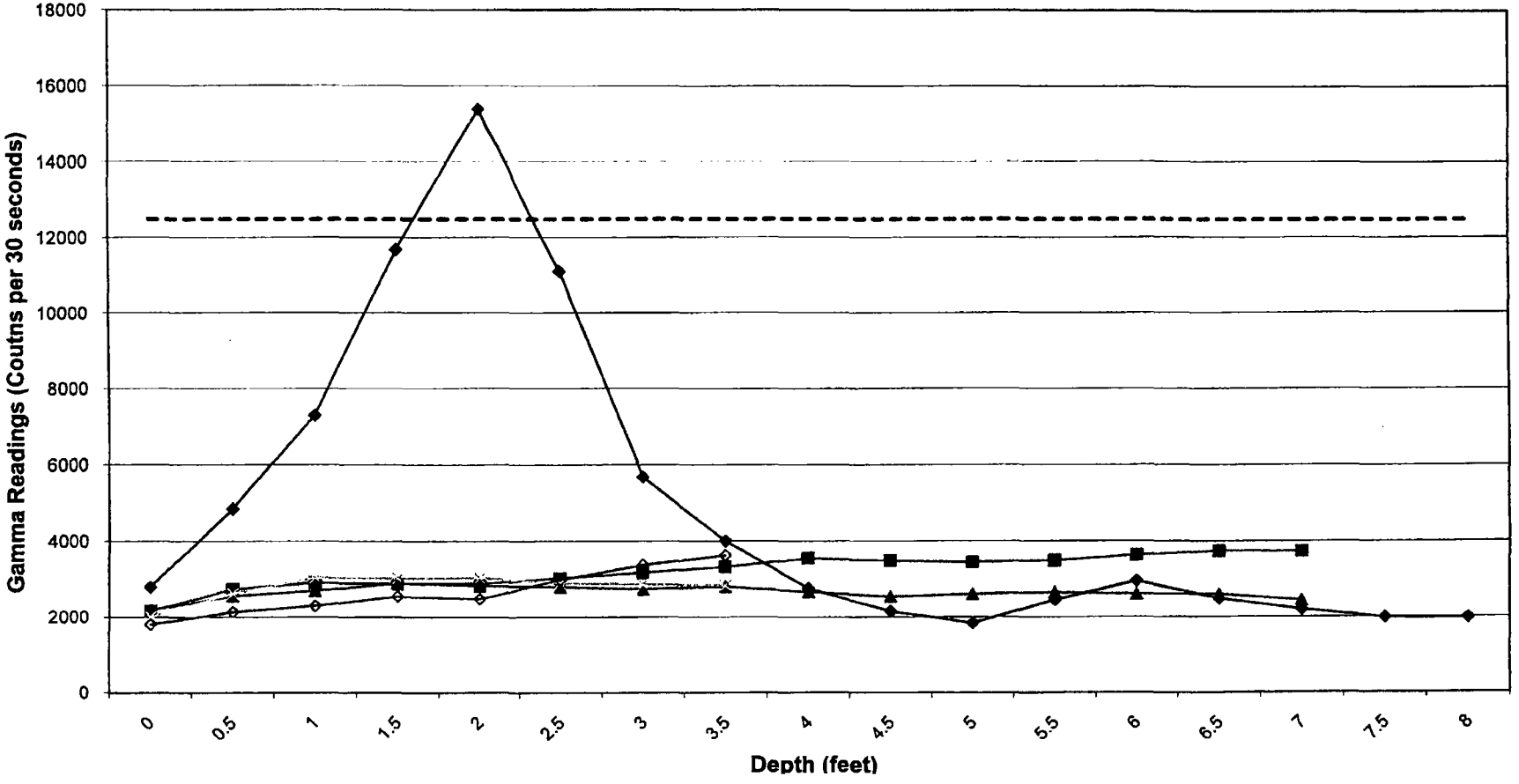
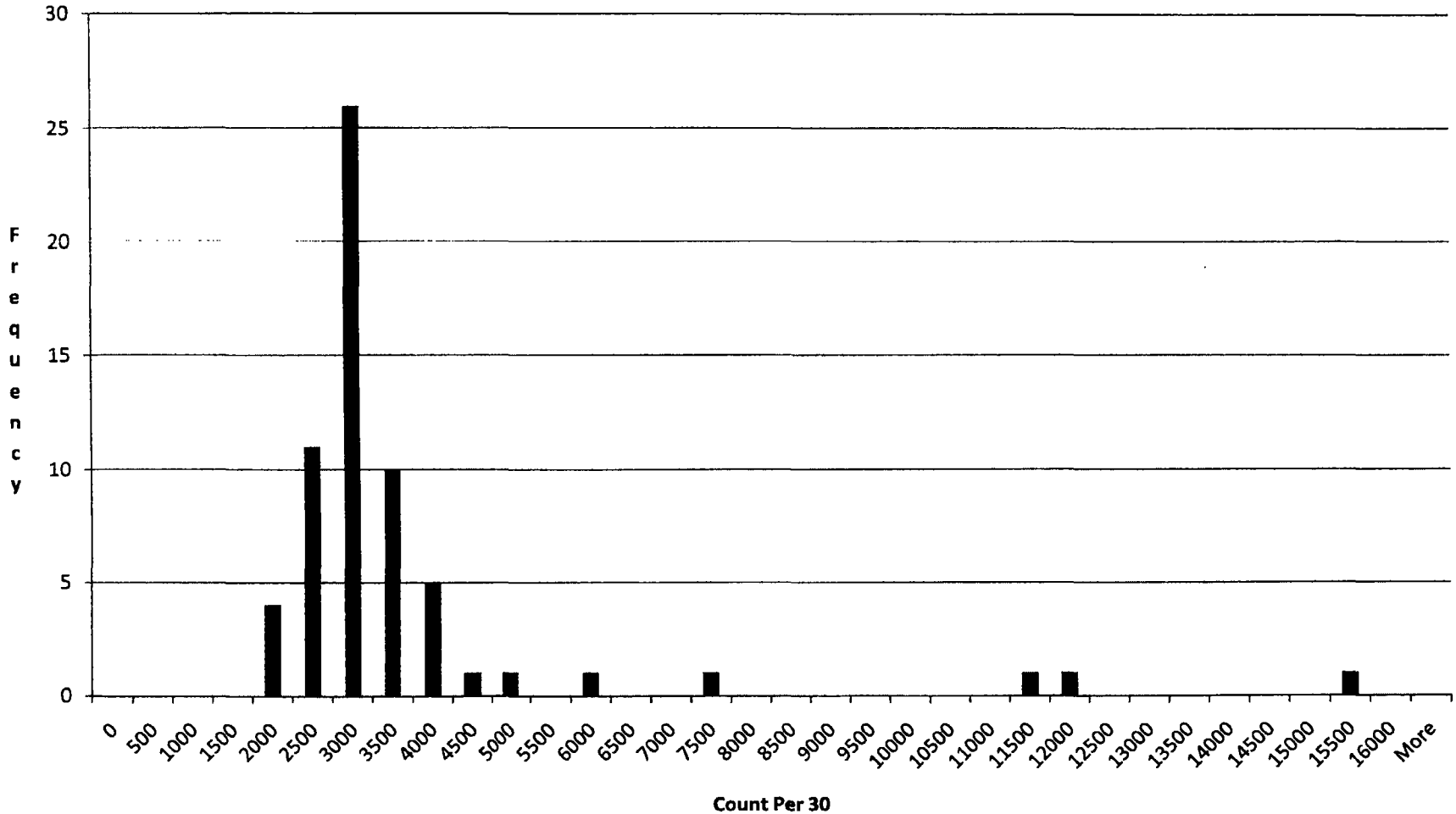


Figure 2
Down-hole Radiological Survey Histogram - 211 E. Grand Ave.
(12,479 Counts Per 30 Seconds equivalent to USEPA Cleanup Limit of 7.1 pCi/g Total Radium)



Appendix A

Plat of Survey Drawing

NATIONAL SURVEY SERVICE, INC.

ALTA/ACSM LAND TITLE SURVEY

SURVEY NO. N-127941 STAKE & TOPO. DATE: DEC. 11, 2008

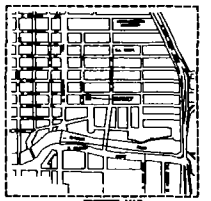
Plat of Survey

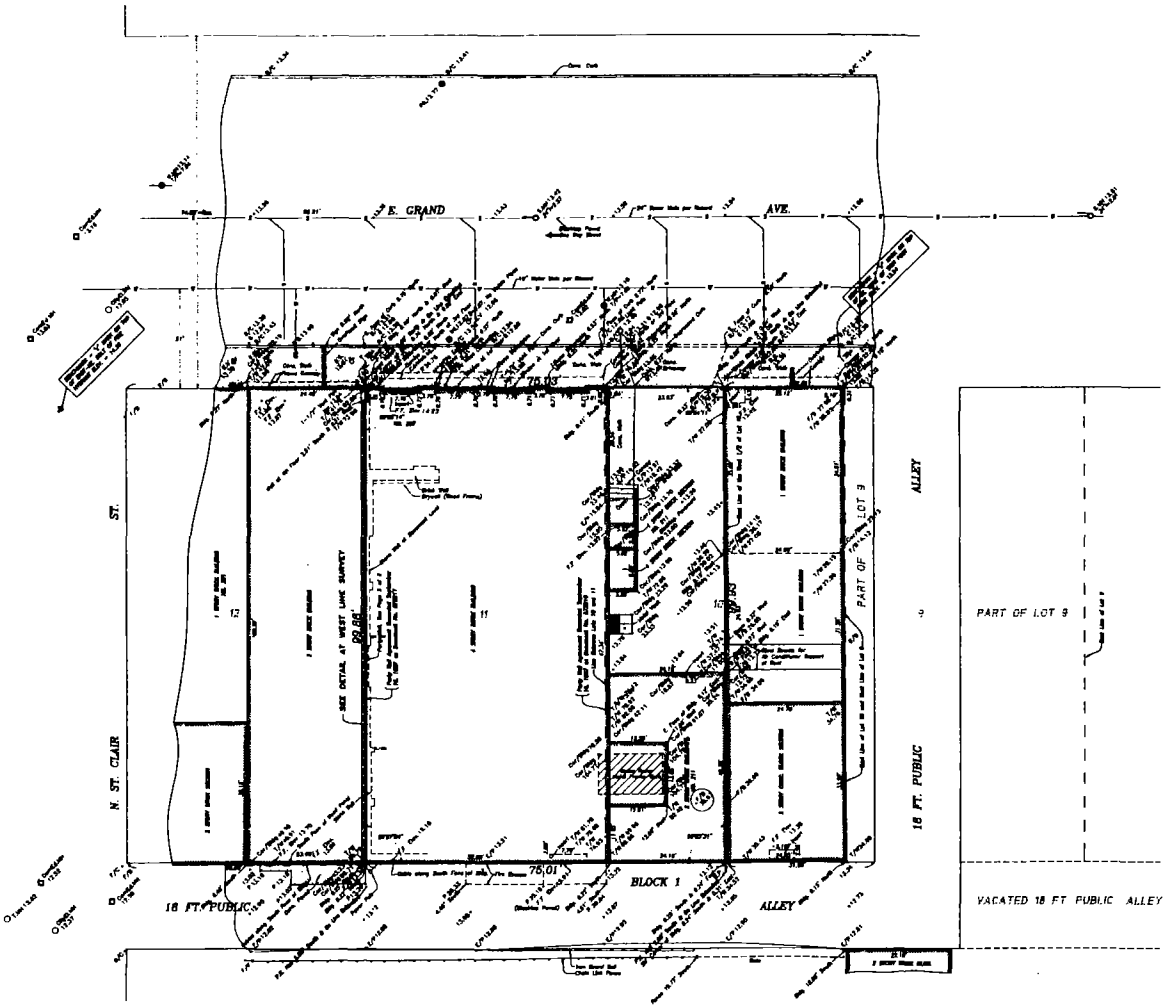
LOT 11 AND THE NORTH HALF OF LOT 10 IN THE SUBDIVISION OF BLOCK 1 OF SUBDIVISION OF BLOCKS 10 TO 16 INCLUSIVE (EXCEPTING THE CANCHER, A SUBDIVISION OF THE NORTH FRACTIONAL QUARTER OF SECTION 10, TOWNSHIP 39 NORTH, RANGE 14 EAST OF THE THIRD PRINCIPAL MERIDIAN), IN COOK COUNTY, ILLINOIS.

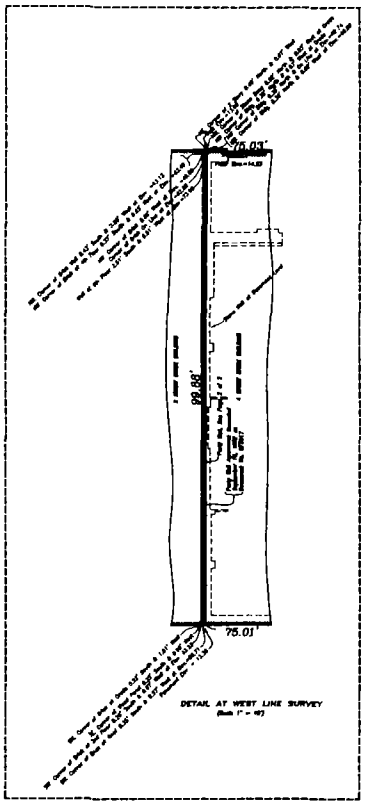
AREA - 7,488 SQ. FT. OR 0.1791 ACRES

KNOWN AS: 311 E. GRAND AVENUE, CHICAGO, ILLINOIS.

SURVEY FOR: RHH-MC







FOR ADDITIONAL DETAILS OF UTILITIES, CONTACT:

CHICAGO DEPARTMENT OF TRANSPORTATION
BUREAU OF INSPECTIONS
OFFICE OF UNDERGROUND COORDINATION
30 N. LaSALLE ST., SUITE 1101
CHICAGO, IL 60602-2574
(FOR 24 HOUR DISPATCH)

LEGEND

B.O. = BOTTOM OF MANHOLE	M. = MILE
B.S. = BURNED SEC.	L.P. = LAMP POST
B.C. = BACK OF CURB	S.V. = GAS VALVE
B.F. = BURNED POST	W. = MANHOLE
C. = CORNER OF CURB	W.V. = MONITORING WELL
CON. = CONCRETE CURB	T. = TRANSFORMER
CH/CH. = CITY ELECTRIC MANHOLE	T.P. = TELEPHONE METER
C.L. = CENTER LINE	S.CON. = SWITCH BOX
CHAIN/SEC. = CHAIN LINK FENCE	T.P. = STANDPIPE
C.P. = CONCRETE PAD	S.MH. = SEWER MANHOLE
W. = BEGINNING FILED	T.P. = TELEPHONE MANHOLE
W.V. = WELL OF WATER	T.B.V. = TOP OF BOARD
E.P. = EDGE OF PAVEMENT	T.P.M. = TOP OF PAVEMENT
E. = ELEVATION	T.P. = TOP OF POST
F.B. = FACE OF BUILDING	T.P. = TOP OF WALL
F.C. = FACE OF CURB	T.R.P. = TELEPHONE PEDESTAL
F.P. = FACE OF FENCE	TRANS. = TRANSFORMER
F.W. = FACE OF WALL	T.S. = TEST STATION
F.C. = FLOWLINE	T.S. = WESTERN UNION
F.F. = FINISHED FLOOR	T.M. = TRAFFIC SIGNAL MANHOLE
F.H. = FIRE HYDRANT	U.P. = UTILITY POLE
G. = GUTTER	V.T.O. = VEHICLE TO OPEN
G.M. = GAS MANHOLE	W.T. = WELL
G.V. = GAS VALVE	W. = WALL
G.S. = GUARD RAIL	W.M. = WATER MANHOLE
I. = GRATE OF PIPE	W. = WOOD FILED

CITY OF CHICAGO UNDERGROUND CITY ELECTRIC CONDUIT =

CONCRETE CABLE TV CABLE =

UNDERGROUND TUNNEL =

CHICAGO TRANSIT AUTHORITY =

COMMUNICATION CITIZEN OR UNDERGROUND ELECTRIC CONDUIT =

SBC UNDERGROUND TELEPHONE CONDUIT =

METROPOLITAN WATER RECLAMATION DISTRICT OF GREATER CHICAGO =

OVERHEAD WIRES =

SEWER MAIN =

WATER MAIN =

WESTERN UNION UNDERGROUND CONDUIT =

IMPORTANT

BE ORIGINAL SHOULD BE REQUIRED BY BOARD RECOMMENDATIONS UPON THE PLAT

BEARINGS ARE BASED ON A PORTION OF THE EAST LINE OF LOT 11 AS BEING N 00°-00'-00" E, AS SHOWN ON THE PLAT OF SURVEY HEREON.

FOR BUILDING LINES AND RESTRICTIONS NOT SHOWN ON THIS PLAT, REFER TO YOUR DEED, ABSTRACT, TITLE POLICY AND LOCAL BUILDING LINE REGULATIONS.

COMPARE ALL POINTS BEFORE BUILDING BY SAME AND AT ONCE REPORT ANY DIFFERENCE BEFORE ANY ADDITIONAL WORK IS DONE. THIS PLAT DOES NOT GUARANTEE OR AFFIRM TO ANY TITLE, BOUNDARY OR EASEMENT. FOR ALL INFORMATION REGARDING EASEMENTS, RIGHT-OF-WAYS AND TITLE OF RECORD, WE RELIED UPON A TITLE COMMITMENT FURNISHED BY THE CLIENT.

DIMENSIONS ARE IN FEET AND DECIMAL PARTS THEREOF UNLESS OTHERWISE SHOWN. COMPARE YOUR DESCRIPTION AND SITE PLAN WITH THIS PLAT AND REPORT ANY DISCREPANCIES AT ONCE.

© NATIONAL SURVEY SERVICE, INC. 2008 ALL RIGHTS RESERVED

WARNING

CITY ORDINANCE OR DEED RESTRICTIONS MAY NOT BE SHOWN HEREON. THIS PLAT IS LIMITED TO THE USE OF THE PARTIES TO WHOM IT IS CERTIFIED. THE LIABILITY OF NATIONAL SURVEY SERVICE, INC. IS LIMITED TO THE AMOUNT PAID FOR THIS SURVEY. ANY USE OR RELIANCE BY ANY OTHER PARTY SHALL BE AT THEIR SOLE RISK. NO LIABILITY SHALL BE ASSUMED FOR ANY USE OF THIS PLAT FOR CONSTRUCTION PURPOSES.

GRAPHIC SCALE

(30 FEET)
1 inch = 30 ft.

BENCHMARK NOTE:
ELEVATIONS ARE BASED IN RELATION TO CITY OF CHICAGO BENCHMARK
BENCHMARK NO. 10081, ELEV. = 13.500 C.C.D. (CHICAGO CITY DATUM)

BASIS OF BEARINGS: BEARINGS ARE BASED ON A PORTION OF THE EAST LINE OF LOT 11 AS BEING N 00°-00'-00" E, AS SHOWN ON THE PLAT OF SURVEY HEREON.

ZONING: THE SUBJECT PROPERTY IS ZONED DX-16 (DOWNTOWN MIXED USE)

FLOOD HAZARD INFORMATION:

THE SUBJECT PROPERTY IS REPRESENTED AS ZONE "X" (AREAS OF MINIMAL FLOOD HAZARD) AS SHOWN ON THE FLOOD INSURANCE RATE MAP (FIRM) FOR THE CITY OF CHICAGO, ILLINOIS, COMMUNITY NO. 170074, PANEL NUMBER 0430 OF 0577, DATED SEPTEMBER 26, 2008, AND REVISED AUGUST 19, 2008, AS PUBLISHED BY THE FEDERAL EMERGENCY MANAGEMENT AGENCY.

TO:

THIS IS TO CERTIFY THAT THIS MAP OR PLAT AND THE SURVEY ON WHICH IT IS BASED WERE MADE IN ACCORDANCE WITH THE "MINIMUM STANDARD DETAIL REQUIREMENTS FOR ALTA/ACSM LAND TITLE SURVEYS," JOINTLY ESTABLISHED AND ADOPTED BY ALTA AND NSPS IN 2005, AND INCLUDES ITEMS 1, 2, 3, 4, 6, 7(a), 7(b)(1), 7(c), 8, 9, 10, 11(a), 13, 14, 16, 17, 18, 19 AND 20 OF TABLE A THEREOF. THE FIELD WORK WAS COMPLETED ON DECEMBER 11, 2008.

DATE OF PLAT OR MAP: DECEMBER 11, 2008

BY: _____
ILLINOIS PROFESSIONAL LAND SURVEYOR NO. 3080

JOSEPH A. MAS
3080
LICENSED
PROFESSIONAL
LAND SURVEYOR
STATE OF
ILLINOIS
CHICAGO, IL

MY LICENSE EXPIRES 11/30/2010

SURVEY NO. N-127941 STAKE & TOPO. DATE: DEC. 11, 2008

State of Illinois }
County of Cook } ss.

We Hereby Certify that we have surveyed the above described property in accordance with official records and that the above plat is a true representation of said survey. Dimensions are expressed in decimals of an inch. Any measurements scaled hereon may not agree with the recorded dimensions due to accuracy of instruments and the method used to establish the lines.

NATIONAL SURVEY SERVICE, INC.
PROFESSIONAL LAND SURVEYORS
30 S. MICHIGAN AVENUE, SUITE 1000
CHICAGO, ILLINOIS 60603
TEL: 312-630-9486 FAX: 312-630-9484

BY: _____
ILLINOIS PROFESSIONAL LAND SURVEYOR NO. 3080

LAND PROJECTS 2008\N127941\7941-SUR.DWG CD-19

Appendix B

USEPA Letter of November 16, 2009

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION 5
77 WEST JACKSON BOULEVARD
CHICAGO, IL 60604-3590

REPLY TO THE ATTENTION OF:

NOV 16 2009

SE-5J

VIA ELECTRONIC MAIL (LSKIBA@DACCORDGROUP.COM)

Mr. Len Skiba
DACCORD Group, LLC
309 West Washington, Suite 405
Chicago, Illinois 60606

RE: Future Ronald McDonald House, 207/209/211 East Grand, Chicago, Illinois

Dear Mr. Skiba:

Thank you for your cooperation and your consent to allow the U.S. Environmental Protection Agency access to the property at 211 East Grand Avenue in Chicago, Illinois. On Monday, November 11, 2009, Eugene Jablonowski, U.S. EPA Superfund Health Physicist, and I conducted a radiation survey in the basement of the four story brick building with the entry door address of 207 East Grand and the first floor of the two-story brick building that is to the east of the building with the outside address of 211 East Grand. We also checked the four test pits that had been dug by hand in the basement for foundation information. U.S. EPA used a Ludlum 2 x 2 sodium iodide detector that had been calibrated to the Streeterville clean-up criterion of 7.1 picoCuries per gram which equated to approximately 18,000 counts per minute (cpm). The results were unremarkable. The gamma counts generally ranged from 5,000 to 6,000 cpm. One area investigated read as high as 13,000 cpm. In our opinion, your building does not appear to be impacted by the Lindsay Light thorium contamination. Please send us your demolition schedule since we would like to take additional readings when the concrete floor is removed from the basement and survey the soils under the two story building.

Thank you again for your continued cooperation. If you have any questions, please contact me at (312) 886-3601 or Eugene Jablonowski, Health Physicist, at (312) 886-4591. Please direct legal questions to Cathleen Martwick, Associate Regional Counsel, at (312) 886-7166 or to Mary Fulghum, Associate Regional Counsel, at (312) 886-4683.

Sincerely,

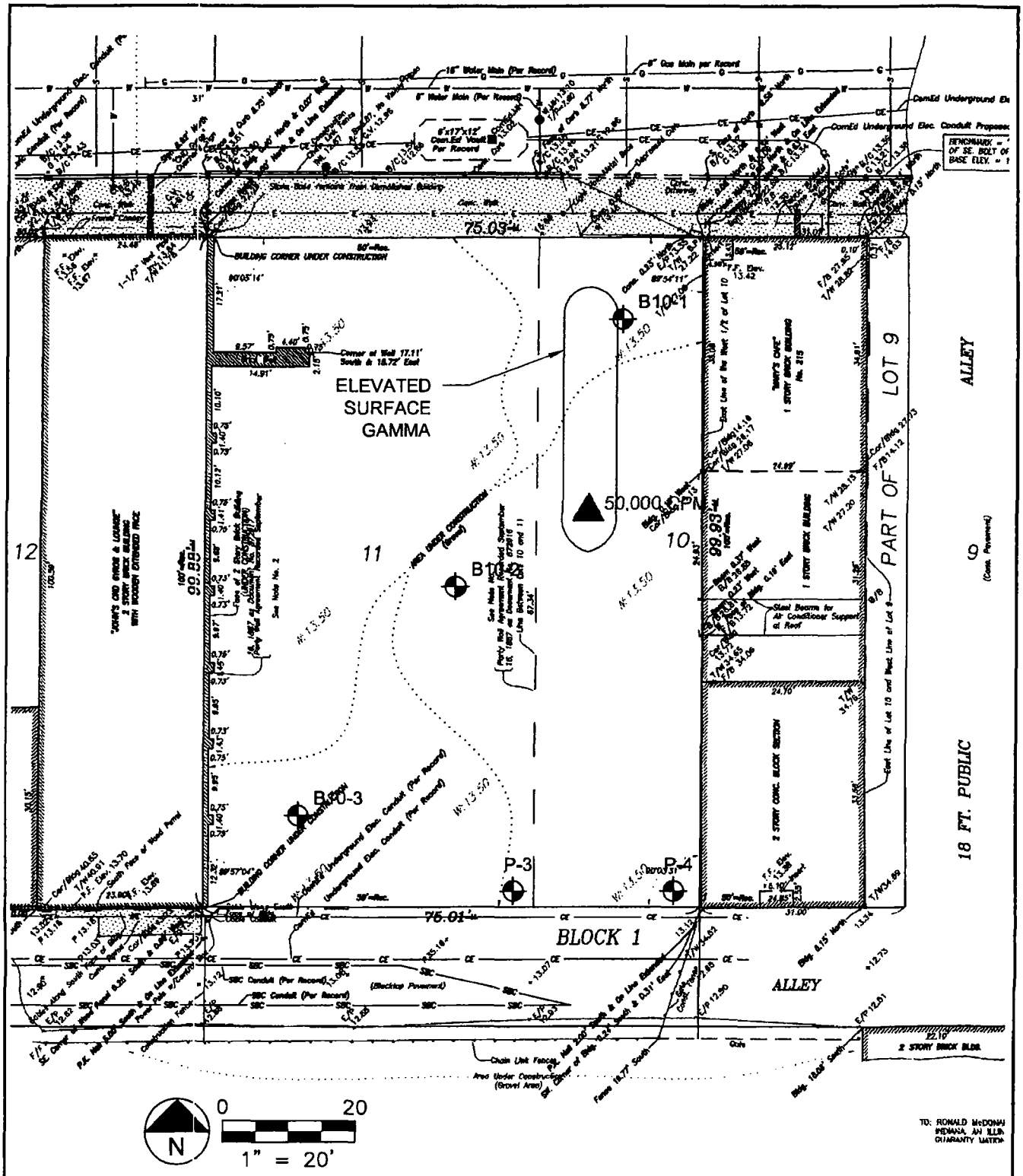
Verneta Simon

Verneta Simon
On-Scene Coordinator

cc: Eamon Reilly, Chicago Department of Environment
Paul Zalmezak, Chicago Department of Planning and Development

Appendix C

Boring Location Drawing



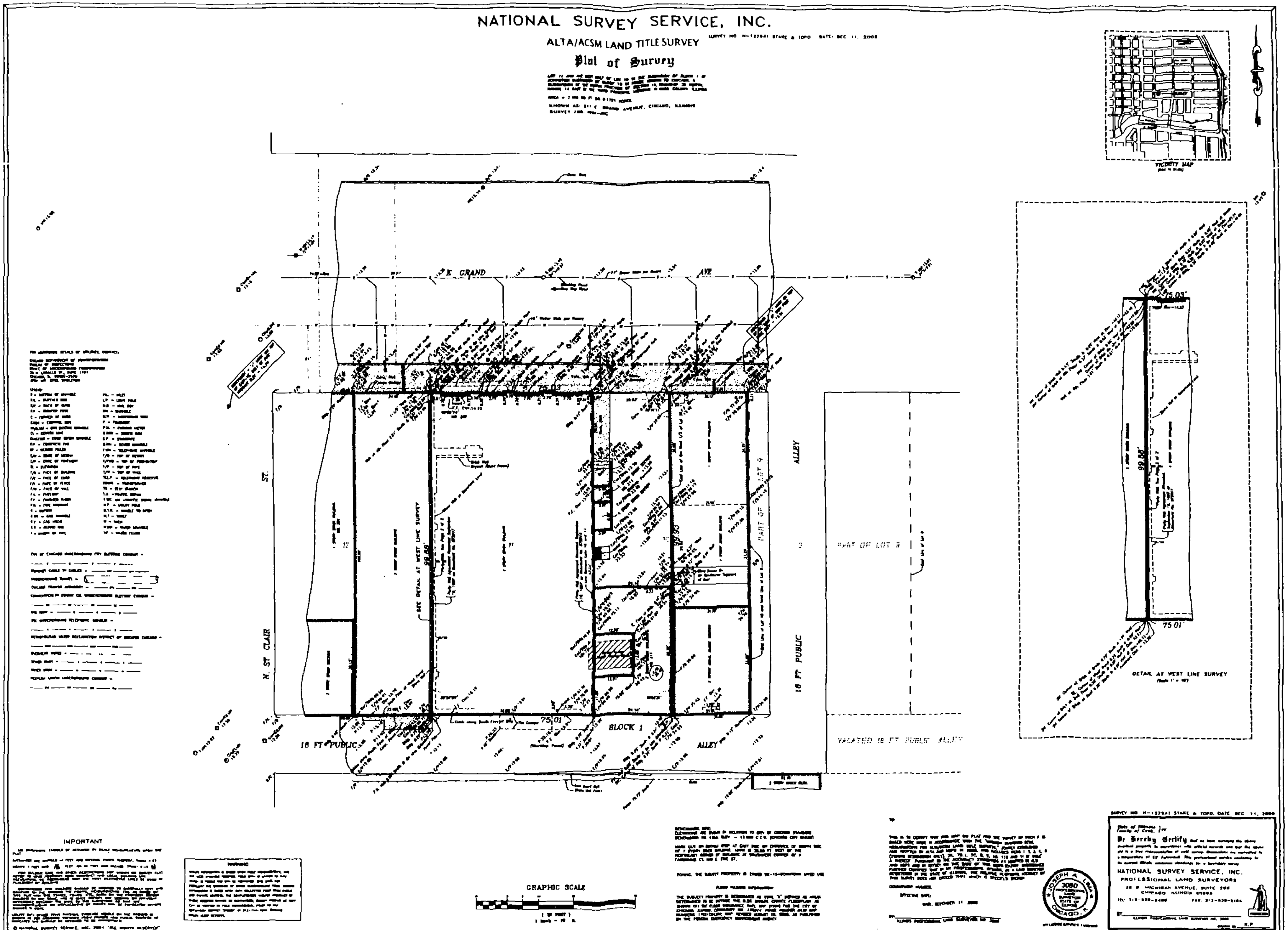
X:\PROJECTS\60157402\000_CAD\001_DRAWINGS\SHEETS\G60157402_SBLD.dwg; 9/28/2010 4:13:25 PM; DEARMAN, DANIEL; STS.stb

AECOM

847.279.2500
www.aecom.com

SOIL BORING LOCATION DIAGRAM
PROPOSED RONALD MCDONALD HOUSE
RONALD MCDONALD HOUSE CHARITIES
211 E. GRAND AVENUE
CHICAGO, ILLINOIS

Drawn:	PCC	06/25/2010
Checked:	PCC	06/25/2010
Approved:	TAK	06/25/2010
PROJECT NUMBER	60157402	
FIGURE NUMBER	1	



NATIONAL SURVEY SERVICE, INC.
ALTA/ACSM LAND TITLE SURVEY
Plat of Survey
E GRAND
AVE
N. ST CLAIR
ST.
ALLEY
18 FT PUBLIC
ALLEY
BLOCK 1
75.01
75.03
99.88
PART OF LOT 3
VACATED 18 FT PUBLIC ALLEY
SEE DETAIL AT WEST LINE SURVEY
DETAIL AT WEST LINE SURVEY
VICINITY MAP
IMPORTANT
WARNING
GRAPHIC SCALE
NATIONAL SURVEY SERVICE, INC.
PROFESSIONAL LAND SURVEYORS

Appendix C

Radiological Soil Sample Analyses

C-1 Gamma Spectroscopy

C-2 NUTRANL Analyses

Appendix C-1

Gamma Spectroscopy

RSSI Spectrum name: G100130.An1

Sample description
G100130 AECOM Streeterville sample ID 60157402-1

Spectrum Filename: H:\GammaVision\User\Spectra\G100130.An1

Acquisition information

Start time:	20-Oct-2010 09:52:27
Live time:	3600
Real time:	3652
Dead time:	1.42 %
Detector ID:	1

Detector system
USER-802B915354 MCB 9

Calibration
Filename: G100130.Spc
10_10_06 energy calibration

Energy Calibration

Created:	20-Oct-2010 09:49:08
Zero offset:	-8.750 keV
Gain:	0.232 keV/channel
Quadratic:	3.423E-08 keV/channel^2

Efficiency Calibration

Created:	19-Aug-2010 11:00:19
Type:	Polynomial
Uncertainty:	1.354 %
Coefficients:	-0.387752 -4.534997 0.605475
	-0.074624 0.003505 -0.000074

Library Files

Main analysis library:	1001a.Lib
Library Match Width:	0.500
Peak stripping:	Library based

Analysis parameters

Analysis engine:	Npp32 G53W3.10
Start channel:	20 (-4.10keV)
Stop channel:	8144 (1885.90keV)
Peak rejection level:	100.000%
Peak search sensitivity:	3
Sample Size:	8.3300E+02
Activity scaling factor:	1.0000E+00/(1.0000E+00* 8.3300E+02) = 1.2005E-03
Detection limit method:	Traditional ORTEC method
Random error:	1.0000000E+00
Systematic error:	1.0000000E+00
Fraction Limit:	10.000%
Background width:	best method (based on spectrum).
Half lives decay limit:	12.000

RSSI Spectrum name: G100130.An1

Activity range factor: 2.000
Min. step backg. energy 0.000
Multiplet shift channel 2.000

Corrections	Status	Comments
Decay correct to date:	NO	
Decay during acquisition:	NO	
Decay during collection:	NO	
True coincidence correction:	NO	
Peaked background correction:	YES	10_09_13 48hr.Pbc 13-Sep-2010 15:29:09
Absorption (Internal):	NO	
Geometry correction:	NO	
Random summing:	NO	

Energy Calibration
Normalized diff: 0.0814

***** S U M M A R Y O F N U C L I D E S I N S A M P L E *****

Nuclide	Time of Count Activity uCi/g	Uncertainty Counting	1 Sigma Total
PB-214	4.5294E-06	2.230E+00%	3.865E+00%
PB-212	3.5628E-05	4.107E-01%	3.371E+00%
BI-212	3.6708E-05	2.847E+00%	3.660E+00%
AC-228	3.9481E-05	8.413E-01%	2.456E+00%
Tl-210 <	4.2515E-08		
TL-208	1.0881E-05	9.557E-01%	2.529E+00%
K-40	9.2889E-06	6.796E+00%	7.157E+00%
BI-214	4.3682E-06	3.543E+00%	4.234E+00%

< - MDA value printed.
A - Activity printed, but activity < MDA.
B - Activity < MDA and failed test.
C - Area < Critical level.
F - Failed fraction or key line test.
H - Halflife limit exceeded

S U M M A R Y

Total Activity (-4.1 to 1885.9 keV) 1.409E-04 uCi/g

***** S U M M A R Y O F L I B R A R Y P E A K U S A G E *****

- Nuclide - Name	Code	Average Activity uCi/g	Peak Energy keV	Peak Activity uCi/g	Code	MDA Value uCi/g	COMMENTS
PB-214	N	4.5294E-06					
			351.93	4.466E-06	(P	7.823E-08 2.97E+00	G
			295.22	4.651E-06	(P	1.322E-07 3.27E+00	G Energy duplication
			77.11	4.529E-06	) P	1.016E-06 5.27E+00	XA
			241.99	5.528E-06	+ P	6.296E-07 1.10E+01	G Energy duplication
			74.82	4.044E-06	) P	1.492E-06 3.64E+01	XA

5 of 5 peaks found

Nuclide		Ave activity	Energy	Activity	Code	MDA	Comments
PB-212	N	3.5628E-05					
			238.63	3.563E-05	(P	6.319E-08	4.10E-01 G
							Energy duplication
			77.11	3.067E-05	) P	4.302E-07	1.34E+00 XA
							Energy duplication
			74.82	3.563E-05	) P	1.013E-06	2.10E+00 XA
			300.09	3.355E-05	- P	1.031E-06	2.65E+00 G
			4 of 4 peaks found				
BI-212	N	3.6708E-05					
			727.33	3.651E-05	(P	4.688E-07	2.84E+00 G
			1620.50	5.332E-05	+ P	3.470E-06	8.49E+00 G
			785.37	3.793E-05	(P	2.608E-06	1.05E+01 G
			893.41	5.379E-05	+ P	8.323E-06	2.17E+01 G
			4 of 4 peaks found				
AC-228	N	3.9481E-05					
			911.20	3.948E-05	(P	9.032E-08	8.40E-01 G
			968.97	3.967E-05	(P	1.383E-07	1.11E+00 G
			338.32	3.262E-05	- P	4.924E-07	2.70E+00 G
			964.77	3.891E-05	(P	7.250E-07	2.64E+00 G
			463.00	3.145E-05	- P	9.380E-07	3.09E+00 G
			5 of 5 peaks found				
TL-208	N	1.0881E-05					
			583.19	1.089E-05	(P	3.970E-08	9.53E-01 G
			510.77	1.215E-05	+ P	2.558E-07	2.52E+00 G
			860.58	1.322E-05	+ P	4.497E-07	4.03E+00 G
			277.37	1.081E-05	@(P	4.138E-07	6.66E+00 G
			763.13	1.358E-05	+ P	1.946E-06	1.32E+01 G
			5 of 5 peaks found				
K-40	N	9.2889E-06					
			1460.82	9.289E-06	(P	3.415E-07	5.72E+00 G
			1 of 1 peaks found				
BI-214	N	4.3682E-06					
			609.32	4.376E-06	(P	7.409E-08	3.50E+00 G
			1764.49	6.290E-06	+ P	3.803E-07	7.54E+00 G
			1120.29	5.089E-06	+ P	3.085E-07	7.67E+00 G
			1238.12	3.495E-06	- P	5.926E-07	2.39E+01 G
			768.36	4.299E-06	(P	6.466E-07	1.54E+01 G
			5 of 5 peaks found				

(- This peak used in the nuclide activity average.

* - Peak is too wide, but only one peak in library.
! - Peak is part of a multiplet and this area went negative during deconvolution.
? - Peak is too narrow.
@ - Peak is too wide at FW25M, but ok at FWHM.
% - Peak fails sensitivity test.
$ - Peak identified, but first peak of this nuclide failed one or more qualification tests.
\+ - Peak activity higher than counting uncertainty range.
\- - Peak activity lower than counting uncertainty range.
= - Peak outside analysis energy range.

& ~ Calculated peak centroid is not close enough to the library energy centroid for positive identification.
P ~ Peakbackground subtraction
} ~ Peak is too close to another for the activity to be found directly.

Nuclide Codes:
T ~ Thermal Neutron Activation
F ~ Fast Neutron Activation
I ~ Fission Product
N ~ Naturally Occurring Isotope
P ~ Photon Reaction
C ~ Charged Particle Reaction
M ~ No MDA Calculation
R ~ Coincidence Corrected
H ~ Halflife limit exceeded

Peak Codes:
G ~ Gamma Ray
X ~ X-Ray
P ~ Positron Decay
S ~ Single-Escape
D ~ Double-Escape
K ~ Key Line
A ~ Not in Average
C ~ Coincidence Peak

********** U N I D E N T I F I E D P E A K S U M M A R Y **********

Peak Channel	Centroid Energy	Background Counts	Net Area Counts	Intensity Cts/Sec	Uncert 1 Sigma%	FWHM keV		Suspected Nuclide
206.07	39.14	5581.	3285.	0.913	4.74	1.301	-	sM
400.77	84.39	14747.	2612.	0.725	6.86	1.562	-	D
413.00	87.23	16181.	7515.	2.087	2.66	1.564	-	D
425.05	90.03	16945.	5480.	1.522	3.62	1.565	-	D
439.48	93.38	12858.	5779.	1.605	3.07	1.567	-	D
465.20	99.35	15424.	1793.	0.498	14.47	1.309	-	
491.15	105.38	13596.	2047.	0.569	12.50	1.240	-	
522.45	112.69	12184.	360.	0.100	43.71	1.577	-	D
533.75	115.32	11246.	1248.	0.347	12.35	1.578	-	D
592.84	129.02	16141.	3347.	0.930	7.01	1.312	-	s
700.96	154.14	15738.	1528.	0.424	18.84	1.309	-	
837.77	185.94	11560.	1432.	0.398	18.96	1.133	-	s
896.02	199.48	10041.	568.	0.158	33.25	1.003	-	s
938.51	209.36	11090.	5450.	1.514	4.39	1.291	-	s
967.20	216.03	10599.	537.	0.149	38.00	0.880	-	s
1041.36	233.21	9575.	491.	0.137	28.51	1.642	-	D
1072.75	240.56	11661.	603.	0.168	25.63	1.646	-	D
1075.16	241.07	55044.	5079.	1.411	6.68	1.646	-	D
1124.76	252.65	6268.	512.	0.142	34.25	0.769	-	s
1200.74	270.31	7519.	4394.	1.221	4.61	1.337	-	
1277.71	288.20	4867.	589.	0.164	21.90	0.821	-	s
1418.61	320.95	4097.	662.	0.184	21.96	0.916	-	s
1448.58	327.92	5669.	3655.	1.015	4.84	1.382	-	
1798.24	409.21	3339.	1844.	0.512	9.03	1.271	-	s
1852.61	421.85	2248.	160.	0.044	51.93	0.567	-	s
2310.89	528.40	2677.	298.	0.083	44.13	0.270	-	s
2457.67	562.53	1736.	830.	0.230	11.58	1.608	-	
2504.92	573.52	482.	44.	0.012	72.16	0.431	-	c
2885.68	662.07	1089.	130.	0.036	44.67	0.254	-	s
3286.84	755.37	1600.	816.	0.227	15.31	1.946	-	M
3359.28	772.38	1226.	941.	0.261	6.19	2.003	-	D
3403.12	782.41	1686.	246.	0.068	24.44	2.011	-	D
3456.75	794.89	1051.	2286.	0.635	3.73	1.675	-	M
3610.94	830.68	976.	275.	0.076	17.15	2.049	-	D
3631.49	835.46	1044.	798.	0.222	6.73	2.053	-	D
3808.04	876.60	468.	240.	0.067	21.51	0.492	-	s

Peak Channel	Centroid Energy	Background Counts	Net Area Counts	Intensity Cts/Sec	Uncert 1 Sigma%	FWHM keV		Suspected Nuclide
3925.24	903.96	691.	510.	0.142	8.54	2.109	-	D
4054.09	933.84	679.	342.	0.095	18.47	1.331	-	s
5572.93	1287.27	473.	154.	0.043	40.02	0.517	-	sM
6885.43	1592.80	370.	582.	0.162	10.49	1.465	-	s
7083.32	1638.88	282.	249.	0.069	21.02	0.451	-	s
7255.49	1678.97	160.	128.	0.035	25.51	0.429	-	s

s - Peak fails shape tests.
D - Peak area deconvoluted.
L - Peak written from unknown list.
C - Area < Critical level.
M - Peak is close to a library peak.

This section based on library: 1001a.Lib

The library has energies which are not separable.

Laboratory: RSSI

Appendix C-2

NUTRANL Analyses

Nutranl Gamma Spec Report - 211 E. Grand Ave. (AECOM)

Stan A. Huber Consultants, Inc.
200 North Cedar Road
New Lenox, IL 60451
(800) 383-0468

Soil Samples Collected 12/17/10 - 12/22/10

Sample ID	Analysis Date	Sample Group	Description	Weight	U-238 Activity	U-238 Uncertainty	Th-232 Activity	Th-232 Uncertainty	Ra-226 Activity	Ra-226 Uncertainty	Total Radium Activity	Total Radium Uncertainty
3019	12/18/2010	soil standard	soilstd121810	36.9	-3.24	3.06	6.29	0.96	1.63	1.22	7.92	1.55
3020	12/18/2010	background	bkg121810	7.5	6.33	2.97	-0.46	0.87	1.22	1.19	0.76	1.47
3021	12/18/2010	EPA QC Standard	RESL081105	16.58	55.95	20.23	24.81	5.68	36.33	7.57	61.14	9.46
3022	12/18/2010	EPA QC Standard	RESL081005	21.4	14.34	5.3	2.1	1.52	3.91	1.97	6.01	2.49
3023	12/18/2010	EPA QC Standard	RESL080905	18.79	16.19	9.91	9.04	2.88	12.7	3.75	21.74	4.73
3024	12/18/2010	211 E. Grand	S5001 Bag #1	29.6	13.05	18.17	50.87	5.24	0.49	6.3	51.36	8.19
3025	12/18/2010	211 E. Grand	S5002 Bag #2	24.1	-5.94	14.41	25.4	4.23	0.7	5.2	26.1	6.70
3026	12/18/2010	211 E. Grand	S5003 Bag #3	25.2	-11.25	28.18	84.67	8.19	-3.8	9.7	80.87	12.70
3027	12/18/2010	211 E. Grand	S5004 Bag #4	23.3	-4.15	8.06	13.01	2.43	0.65	2.97	13.66	3.84
3028	12/18/2010	211 E. Grand	S5005 Bag #5	19.9	1.81	4.74	6.81	1.45	3.48	1.86	10.29	2.36
3029	12/18/2010	211 E. Grand	S5006 Bag #6	23.9	2.17	5.83	5.61	1.75	4.08	2.25	9.69	2.85
3030	12/19/2010	211 E. Grand	S5007 Bag #7	28.5	-124.23	187.9	800.11	54.47	47.84	65.5	847.95	85.19
3031	12/19/2010	211 E. Grand	S5008 Bag #8	25.7	11.38	8.32	6.98	2.39	0.6	3.03	7.58	3.86
3032	12/19/2010	211 E. Grand	S5009 Bag #9	20.5	5.4	7.11	7.05	2.12	6.31	2.76	13.36	3.48
3033	12/19/2010	211 E. Grand	S5010 Bag #10	23.5	9.54	7.54	9.62	2.22	1.35	2.77	10.97	3.55
3034	12/19/2010	211 E. Grand	S5011 Bag #11	23.3	9.14	5.63	3.74	1.64	1.22	2.09	4.96	2.66
3035	12/19/2010	211 E. Grand	S5012 Bag #12	25.1	6.83	5.47	1.59	1.6	2.37	2.07	3.96	2.62
3036	12/19/2010	211 E. Grand	S5013 Bag #13	24.4	27.99	19.25	48.63	5.51	2.55	6.61	51.18	8.61
3037	12/19/2010	211 E. Grand	S5014 Bag #14	24.8	9.73	17.84	48.87	5.13	6.37	6.19	55.24	8.04
3038	12/19/2010	211 E. Grand	S5015 Bag #15	25.9	15.68	13.32	35.46	3.84	10.59	4.76	46.05	6.12
3039	12/19/2010	211 E. Grand	S5016 Bag #16	26.5	27.35	31.95	85.11	9.17	22.3	11.33	107.41	14.58
3040	12/20/2010	soil standard	soilstd122010	36.9	3.14	4.88	6.68	1.45	0.57	1.84	7.25	2.34
3041	12/20/2010	background	bkg122010	7.5	6.2	4.33	0.32	1.27	-0.58	1.67	-0.26	2.10
3042	12/20/2010	211 E. Grand	S5017 Bag#17	20.7	-3.19	12.63	39.59	3.75	5.15	4.61	44.74	5.94
3043	12/20/2010	211 E. Grand	S5018 Bag#18	21.6	22.03	17.97	34.05	5.05	7.5	6.26	41.55	8.04
3044	12/20/2010	211 E. Grand	S5019 Bag#19	28.3	44.59	30.66	79.04	8.64	9.72	10.42	88.76	13.54
3045	12/20/2010	211 E. Grand	S5020 Bag#20	32.9	9.44	17.05	37.07	4.88	4.31	5.96	41.38	7.70
3046	12/20/2010	211 E. Grand	S5021 Bag#21	28.8	16.21	25.65	87.77	7.41	11.39	8.99	99.16	11.65
3047	12/20/2010	211 E. Grand	S5022 Bag#22	33.4	14.27	10.67	19.06	3.1	4.41	3.78	23.47	4.89
3048	12/20/2010	211 E. Grand	S5023 Bag#23	31.2	16.44	9.33	12.31	2.7	4.07	3.34	16.38	4.29
3049	12/20/2010	211 E. Grand	S5024 Bag#24	34.1	22.43	11.95	18.73	3.39	3.73	4.19	22.46	5.39

Sample ID	Analysis Date	Sample Group	Description	Weight	U-238 Activity	U-238 Uncertainty	Th-232 Activity	Th-232 Uncertainty	Ra-226 Activity	Ra-226 Uncertainty	Total Radium Activity	Total Radium Uncertainty
3050	12/20/2010	211 E. Grand	S5025 Bag#25	30.7	2.33	13.35	25.24	3.91	4.78	4.84	30.02	6.22
3051	12/20/2010	211 E. Grand	S5026 Bag#26	35.5	18.41	8.57	12.57	2.42	3.27	3.05	15.84	3.89
3052	12/20/2010	211 E. Grand	S5027 Bag#27	35.1	22.47	13.52	36.96	3.88	9.57	4.8	46.53	6.17
3053	12/20/2010	211 E. Grand	S5028 Bag#28	33.8	14.99	20.07	51.18	5.83	4.87	6.98	56.05	9.09
3054	12/20/2010	211 E. Grand	S5029 Bag#29	33.6	41.23	18.04	47.56	5.08	10.21	6.28	57.77	8.08
3055	12/20/2010	211 E. Grand	S5030 Bag#30	32.2	11.85	10.4	22.14	2.99	3.87	3.7	26.01	4.76
3056	12/20/2010	211 E. Grand	S5031 Bag#31	35.9	20.35	13.79	33.41	3.98	4.9	4.8	38.31	6.24
3057	12/20/2010	211 E. Grand	S5032 Bag#32	33.6	7.36	20.35	72.12	5.9	10.45	7.19	82.57	9.30
3058	12/20/2010	211 E. Grand	S5033 Bag#33	34.8	0.19	14.23	32.26	4.18	4.39	5.07	36.65	6.57
3059	12/21/2010	soil standard	soilstd122110	36.9	4.24	5.41	5.45	1.6	2.67	2.04	8.12	2.59
3060	12/21/2010	background	bkg122110	7.5	-2.62	3.09	0.77	1.01	0.01	1.32	0.78	1.66
3061	12/21/2010	211 E. Grand	S5034 Bag #34	35.3	10.54	12.12	19.07	3.53	3.63	4.39	22.7	5.63
3062	12/21/2010	211 E. Grand	S5035 Bag #35	21.6	0.66	4.15	2.27	1.28	5.41	1.74	7.68	2.16
3063	12/21/2010	211 E. Grand	S5036 Bag #36	36.9	15.59	7.87	5.71	2.2	2.74	2.85	8.45	3.60
3064	12/21/2010	211 E. Grand	S5037 Bag #37	34.5	9.32	6.85	10.32	2.02	1.96	2.5	12.28	3.21
3065	12/21/2010	211 E. Grand	S5038 Bag #38	40.3	13.69	8.82	15.85	2.54	4.36	3.18	20.21	4.07
3066	12/21/2010	211 E. Grand	S5039 Bag #39	35.9	13.48	9.27	22.14	2.7	6.71	3.34	28.85	4.29
3067	12/21/2010	211 E. Grand	S5040 Pre EPA #1	31.7	4.83	4.59	2.61	1.36	0.61	1.76	3.22	2.22
3068	12/21/2010	211 E. Grand	S5041 Pre EPA #2	31.5	11.66	3.73	-0.81	1.06	3.22	1.5	2.41	1.84
3069	12/23/2010	soil standard	soilstd122310	36.9	11.74	6.23	4.91	1.79	2.7	2.34	7.61	2.95
3070	12/23/2010	background	bkg122310	7.5	-3.35	3.36	-0.32	1.08	0.69	1.52	0.37	1.86
3071	12/23/2010	211 E. Grand EPA	10756 VU-1A	30.5	5.43	5.63	1.19	1.69	4.32	2.24	5.51	2.81
3072	12/23/2010	211 E. Grand EPA	10757 VU-1B	31.1	14.53	4.05	1.97	1.15	2.59	1.51	4.56	1.90
3073	12/23/2010	211 E. Grand EPA	10758 VU-1C	30.4	4.72	5.04	3.83	1.5	2.62	1.94	6.45	2.45
3074	12/23/2010	211 E. Grand EPA	10759 VU-1D	30.4	7.92	4.67	2.22	1.37	1.93	1.77	4.15	2.24
3075	12/23/2010	211 E. Grand EPA	10760 VU-1E	31.3	7.56	4.85	1.98	1.42	3.52	1.91	5.5	2.38
3076	12/23/2010	211 E. Grand	S5042 Bag #40	29.9	10.75	5.57	3.47	1.63	2.86	2.07	6.33	2.63
3077	12/23/2010	211 E. Grand	S5043 Bag #41	28.6	7.52	6.31	3.83	1.86	4.43	2.45	8.26	3.08
3078	12/23/2010	211 E. Grand	S5044 Bag #42	29.9	5.76	6.99	11.23	2.07	2.4	2.53	13.63	3.27
3079	12/23/2010	211 E. Grand	S5045 Bag #43	30.8	16.18	6.31	11.36	1.82	4.43	2.33	15.79	2.96
3080	12/23/2010	211 E. Grand	S5046 Bag #44	30.8	8.2	11.8	21.57	3.47	7.92	4.34	29.49	5.56
3081	12/23/2010	211 E. Grand	S5047 Bag #45	33.2	21.2	10.48	13.79	2.98	7.96	3.78	21.75	4.81
3082	12/23/2010	211 E. Grand	S5048 Bag #46	31.8	22.52	16.5	30.77	4.69	6.43	5.71	37.2	7.39
3083	12/23/2010	211 E. Grand	S5049 Bag #47	31.8	18.07	13.14	33.88	3.77	8.78	4.65	42.66	5.99
3084	12/23/2010	211 E. Grand	S5050 Bag #48	33.9	14.78	7.66	16.25	2.22	2.2	2.7	18.45	3.50
3085	12/23/2010	211 E. Grand	S5051 Bag #49	33	5.02	13.4	24.79	3.98	6.01	4.94	30.8	6.34
3086	12/23/2010	211 E. Grand	S5052 Bag #50	32.5	5	12.55	29.59	3.66	-0.47	4.38	29.12	5.71

Sample ID	Analysis Date	Sample Group	Description	Weight	U-238 Activity	U-238 Uncertainty	Th-232 Activity	Th-232 Uncertainty	Ra-226 Activity	Ra-226 Uncertainty	Total Radium Activity	Total Radium Uncertainty
3087	12/23/2010	211 E. Grand	S5053 Bag #51	33.6	18.11	9.84	17.51	2.81	3.58	3.48	21.09	4.47
3088	12/23/2010	211 E. Grand	S5054 Bag #52	34.1	32.74	10.21	24.09	2.85	6.47	3.52	30.56	4.53
3089	12/23/2010	211 E. Grand	S5055 Bag #53	33.1	16.08	7.32	15.54	2.14	5.16	2.67	20.7	3.42
3090	12/23/2010	211 E. Grand	S5056 Bag #54	31.3	21.67	12.21	26.82	3.52	5.78	4.29	32.6	5.55
3091	12/23/2010	211 E. Grand	S5057 Bag #55	31.6	18.67	12.22	27.63	3.52	7.68	4.36	35.31	5.60
3092	12/23/2010	211 E. Grand	S5058 Bag #56	34.7	13.1	7.7	12.04	2.26	2.08	2.78	14.12	3.58
3093	12/23/2010	211 E. Grand	S5059 Bag #57	32.8	12.85	20.75	31.76	6.02	8.63	7.38	40.39	9.52
3094	12/23/2010	211 E. Grand	S5060 Overburden #1	35.1	5.72	5.09	2.46	1.51	2.27	1.98	4.73	2.49
3095	12/23/2010	211 E. Grand	S5061 Overburden #2	29.4	8.23	5.1	1.66	1.5	2.81	2.01	4.47	2.51
3096	12/23/2010	211 E. Grand	S5062 Overburden #3	33.2	6.29	5.69	2.23	1.66	0.38	2.15	2.61	2.72
3097	12/23/2010	211 E. Grand	S5063 Overburden QC	32.8	6.99	5.49	-0.24	1.61	3.6	2.2	3.36	2.73

Analyzed by Canberra Genie 2000 NaI Gamma Spec System
2"x2" NaI detector w/ NUTRANL software package

Nutranl Gamma Spec Report- AECOM 211 E. Grand Ave.

Stan A. Huber Consultants, Inc.
200 North Cedar Road
New Lenox, IL 60451
(800) 383-0468

Sample ID	Sample Date	Sample Group	Description	Weight	U-238 Activity	U-238 Uncertainty	Th-232 Activity	Th-232 Uncertainty	Ra-226 Activity	Ra-226 Uncertainty	Total Radium Activity	Total Radium Uncertainty
3102	1/6/2011	soil standard	soilstd010611	36.9	8.63	6.77	6.39	1.97	1.74	2.46	8.13	3.15
3103	1/6/2011	background	bkg010611	7.5	5.49	4.1	0.06	1.21	-0.1	1.6	-0.04	2.01
3104	1/6/2011	211 E. Grand	S5068 CA6 Backfill	26.4	8.29	5.2	-0.87	1.51	2	2.03	1.13	2.53

211 E. Grand Ave - OVERBURDEN STOCKPILE SAMPLING

OVERBURDEN SOIL

Excavation Area: 211 E. Grand Overburden

Date Sampled: 12/22/2010

Number of Samples Required Per SOP 214: 3

PILE # : N/A

Est. Volume of Lift in Cubic Yards: 50

Sample #	Total Radium in pCi/g	QC Sample Dup. Tot. Rad. in pCi/g	E lab uncertainty	S_2 Std. Dev. for the analyses of the *duplicate sample*	S_{dup} Std. Dev. of the duplicate sampling & *measurement*
S5060 OB#1	4.73				
S5061 OB#2	4.47				
S5062 OB#3	2.81				
S5062 OB QC		3.36	2.72	1.36	
Number of Samples (n)	3			$S_{dup} = \text{sqrt}(S_1^2 + S_2^2) =$	1.71
Average (Mean of the sample population) (X bar)	4.00				

Average of samples is <7.1 pCi/g, Proceed with Confidence Level Check described in SOP-214, Paragraph 6.12

Standard Deviation of sample population (S_1)	1.04	
		"t" value
U_α (**True Mean**) = (X bar) + (t * (S_1/sqrt(n)))	**5.76**	*2.92*
Where "t" is a statistic used for small sample tests of hypotheses (the Student Distribution), from SOP No. KMS-102, Attachment 10.6		
Release Criteria	7.1	
U_α < Release Criteria?	**SAMPLES TESTED MEET 95% CONFIDENCE LEVEL - LIFT IS RADIOLOGICALLY ACCEPTABLE FOR USE AS ONSITE BACKFILL PER SOP-214**	

Check if QC Sample Dup. is within 3 Standard Deviations (3 S_{dup}) of the mean of the sample population, per SOP 214, paragraph 12.1

3 x S_{dup} =	5.14		
Mean + 3 S_{dup} =	9.1	**QC < (Mean + 3S_{dup})?**	**O.K.**
Mean - 3 S_{dup} =	-1.1	**QC > (Mean - 3S_{dup})?**	**O.K.**

APPROVED: FIELD TEAM LEADER: _____

APPROVED: PROJECT MANAGER: 12/23/10

Name/date

Appendix D

USEPA Signed Notification of Successful Verification Sampling Forms

AECOM

FORM 223-1
NOTIFICATION OF SUCCESSFUL VERIFICATION SURVEY

Area Identification: 211 E Grand Ave - Former Loading Dock Pit #2

Date of Verification Survey: 12/22/10

Time of Verification Survey: 3:00 am/pm

The above-described excavation was surveyed at the time and date indicated above. The survey indicated that all soils have been removed as required by the Site Removal Action Criteria.

Documents pertaining to this survey are attached for review and approval by the USEPA.

Signed: [signature]

Date: 12/23/10

Print Name Steve Kohler

Print Title Senior Project Geochemist

AECOM

The attached Verification Survey documents were reviewed by USEPA Region 5 on 12/22/10. The results of this survey indicate that the verification criteria as contained in the Administrative Settlement Agreement and Order on Consent.

Authorization is hereby granted to commence backfill and restoration work at this excavation.

Date 12/23/10

Print Name Verneta Simon

Print Title On-Scene Coordinator

For USEPA Region 5

Nutranl Gamma Spec Report- AECOM 211 E. Grand Ave.

Exclusion Zone Confirmatory Samples for December 22, 2010

Sample ID	Analysis Date	Sample Group	Description	Weight	U-238 Activity	U-238 Uncertainty	Th-232 Activity	Th-232 Uncertainty	Ra-226 Activity	Ra-226 Uncertainty	Total Radium Activity	Total Radium Uncertainty
3071	12/23/2010	211 E. Grand EPA	10756 VU-1A	30.5	5.43	5.63	1.19	1.69	4.32	2.24	5.51	2.81
3072	12/23/2010	211 E. Grand EPA	10757 VU-1B	31.1	14.53	4.05	1.97	1.15	2.59	1.51	4.56	1.90
3073	12/23/2010	211 E. Grand EPA	10758 VU-1C	30.4	4.72	5.04	3.83	1.5	2.62	1.94	6.45	2.45
3074	12/23/2010	211 E. Grand EPA	10759 VU-1D	30.4	7.92	4.67	2.22	1.37	1.93	1.77	4.15	2.24
3075	12/23/2010	211 E. Grand EPA	10760 VU-1E	31.3	7.56	4.85	1.98	1.42	3.52	1.91	5.5	2.38

Average Total Radium (Th-232+Ra-226) Concentration for : 211 E. Grand Exclusion Zone = 5.23 pCi/g

Analyzed by Canberra Genie 2000 Nal Gamma Spec System
2"x2" Nal detector w/ NUTRANL software package

Appendix E

USEPA Contract Laboratory Analytical Data

USEPA Contract Laboratory
Analytical Data is to be provided by the USEPA

Appendix F

Shipping Manifests and Truck Survey

STRAIGHT BILL OF LADING SHORT FORM NOT NEGOTIABLE

CARRIER: Landstar Trucking
Carrier No: 9852-01-0001

Shipment No: 9852-01-0001

Date: 01/04/2011

Received, subject to the classifications and tariffs in effect on the date of the issue of this Bill of Lading, the property described below in apparent good order, except as noted (contents and condition of contents of packages unknown), marked, consigned, and destined as indicated below, which said carrier agrees to carry to its usual place of delivery. If on its route, otherwise to deliver to another carrier on the route to said destination. It is mutually agreed as to each carrier of all or any of said routes to destination and as to each party at any time interested in all or any of said property, that every service to be performed hereunder shall be subject to all Bill of Lading terms and conditions in the governing classification on the date of shipment. The shipper hereby certifies that he is familiar with all the Bill of Lading terms and conditions in the governing classification and the said terms and conditions are hereby agreed to by the shipper and accepted for himself and his assigns.

Consignee: Energy Solutions, LLC
Clive Disposal Site (Bulk Waste Facility)
Interstate 80, Exit 49
Clive, UT 84029

Shipper: Ronald McDonald House of Charities of Chicago

Site: 211 E. Grand Chicago, IL 60601

Tractor Number: 17240 Trailer Number: 727240

No. Pkgs.	HM	Description of Material	Weight (lbs.)	Class	ERG
14	X	Radioactive material, low specific activity (LSA-I), 7, UN2912, Thorium Impacted Soils	35000	7	162
		Radionuclides: K-40, Th-(nat), U-(nat) Total Activity: 2.4786E+01 MBq Physical Form: Solid, Chemical Form: Oxides			
		Label: None, Placarded: "Radioactive"			

Subject to section 7 of conditions of applicable Bill of Lading, if this shipment is to be delivered to the consignee without recourse on the consignor, the consignor shall sign the following statement:

The carrier shall not make delivery of this shipment without payment of freight and all other lawful charges.

N/A
Signature of the Consignor

If freight charges are to be pre-paid, write or stamp here "TO BE PREPAID".

N/A

865-740-6870 TTA

24 HOUR Emergency Contact Number: ~~1-847-343-6001~~ 7

Notice: For additional information contact: Timothy Mock @ 865-740-6870
Exclusive Use Shipment

NOTE: Where the rate is dependent on value, shippers are required to state specifically in writing the agreed on value of the property.
The agreed on or declared value of the property is hereby specifically stated by the shipper to be not exceeding:

N/A
$_____ per _____ (unit)

SS741 Reference
N/A

Marking/Label(s) applied:
"Radioactive"

Placard(s) required:
Class 7

This is to certify that the above named materials are properly described, packaged, marked, and labeled, and are in proper condition for transportation according to the applicable regulations of the U.S. Department of Transportation.

Shipper: Timothy Mock
Contract with: tTA/CE
Per: On behalf of Ronald McDonald House

The additions on the face hereof and the terms and conditions are hereby noted:
Carrier: Landstar Trucking
Per: _____ Date: 1/4/2011
Print: ART TREUSE

AECOM COPY

FORM 540 — **EnergySolutions, LLC**

UNIFORM LOW-LEVEL RADIOACTIVE WASTE MANIFEST
SHIPPING PAPER

1. EMERGENCY TELEPHONE NUMBER *(Include Area Code)*
~~847 [illegible]-6007~~ 865-740-6870

ORGANIZATION
~~AECOM~~ 4TA

2. IS THIS AN "EXCLUSIVE USE" SHIPMENT?
☑ YES
☐ NO

3. TOTAL NUMBER OF PACKAGES IDENTIFIED ON THIS MANIFEST ——> 14

4. DOES EPA REGULATED WASTE REQUIRING A MANIFEST ACCOMPANY THIS SHIPMENT? ☐ YES ☑ NO
If "Yes," provide Manifest Number ——>

EPA MANIFEST NUMBER

5. SHIPPER – NAME AND FACILITY
RONALD MCDONALD HOUSE OF CHARITIES OF CHICAGO
211 EAST GRAND
CHICAGO, IL 60601

SHIPPER I.D. NUMBER 9852-01-0001
☐ COLLECTOR
☐ PROCESSOR
☑ GENERATOR TYPE (Specify) O

Utah Generator Site Access Permit No. 1012008320
SHIPMENT NUMBER 9852-01-0001

CONTACT DOUG PORTER
TELEPHONE NUMBER (Include Area Code) 1-800-623-5307

6. CARRIER – Name and Address
Landstar Trucking
13410 Sutton Park South
Jacksonville, FL 32224

EPA I.D. NUMBER FLR 000 087 167
SHIPPING DATE 01/04/2011

CONTACT Brandon Coburn
TELEPHONE (Include Area Code) 800-872-9625

SIGNATURE – *Authorized carrier acknowledging waste receipt* [signature]
DATE 1/4/11

7. FORM 540 AND 540A — PAGE 1 OF 2 PAGE(S)
FORM 541 AND 541A — 4 PAGE(S)
FORM 542 AND 542A — None PAGE(S)
ADDITIONAL INFORMATION — None PAGE(S)

8. MANIFEST NUMBER (Use this number on all continuation pages)
9852-01-0001

9. CONSIGNEE - Name and Facility
EnergySolutions, LLC
Clive Disposal Site (Bulk Waste Facility)
Interstate 80, Exit 49
Clive, UT 84029

CONTACT **Transportation Compliance**
TELEPHONE (Include Area Code) **(435)884-0155**

SIGNATURE – *Authorized consignee acknowledging waste receipt*
DATE

10. CERTIFICATION
This is to certify that the herein-named materials are properly classified, described, packaged, marked, and labeled and are in proper condition for transportation according to the applicable regulations of the Department of Transportation. This also certifies that the materials are classified, packaged, marked, and labeled and are in proper condition for transportation and disposal as described in accordance with the requirements of 10 CFR Parts 20 and 61, or equivalent state regulations.

AUTHORIZED SIGNATURE [signature] **TITLE** 4TA [illegible] / ICE / Ronald McDonald House **DATE** 1/4/11

11. U.S. DEPARTMENT OF TRANSPORTATION DESCRIPTION (including proper shipping name, hazard class, UN ID number, and any additional information)	12. DOT LABEL "RADIOACTIVE"	13. TRANSPORT INDEX	14. PHYSICAL AND CHEMICAL FORM	15. INDIVIDUAL RADIONUCLIDES			16. TOTAL PACKAGE ACTIVITY MBq	mCi	17. LSA/SCO CLASS	18. TOTAL WEIGHT OR VOLUME (Use appropriate units)	19. IDENTIFICATION NUMBER OF PACKAGE
Radioactive material, low specific activity (LSA-I), 7, UN 2912 , Thorium Impacted Soils	**NA**	**NA**	**solid metal oxides**	K-40	Th-(nat)	U-(nat)	**1.7705E+00**	**4.7850E-02**	**LSA-I**	**2500 LBS; 27 FT3**	**Bag 25**
Radioactive material, low specific activity (LSA-I), 7, UN 2912 , Thorium Impacted Soils	**NA**	**NA**	**solid metal oxides**	K-40	Th-(nat)	U-(nat)	**1.7705E+00**	**4.7850E-02**	**LSA-I**	**2500 LBS; 27 FT3**	**Bag 26**
Radioactive material, low specific activity (LSA-I), 7, UN 2912 , Thorium Impacted Soils	**NA**	**NA**	**solid metal oxides**	K-40	Th-(nat)	U-(nat)	**1.7705E+00**	**4.7850E-02**	**LSA-I**	**2500 LBS; 27 FT3**	**Bag 28**
Radioactive material, low specific activity (LSA-I), 7, UN 2912 , Thorium Impacted Soils	**NA**	**NA**	**solid metal oxides**	K-40	Th-(nat)	U-(nat)	**1.7705E+00**	**4.7850E-02**	**LSA-I**	**2500 LBS; 27 FT3**	**Bag 30**
Radioactive material, low specific activity (LSA-I), 7, UN 2912 , Thorium Impacted Soils	**NA**	**NA**	**solid metal oxides**	K-40	Th-(nat)	U-(nat)	**1.7705E+00**	**4.7850E-02**	**LSA-I**	**2500 LBS; 27 FT3**	**Bag 33**
Radioactive material, low specific activity (LSA-I), 7, UN 2912 , Thorium Impacted Soils	**NA**	**NA**	**solid metal oxides**	K-40	Th-(nat)	U-(nat)	**1.7705E+00**	**4.7850E-02**	**LSA-I**	**2500 LBS; 27 FT3**	**Bag 36**

FOR CONSIGNEE USE ONLY

___ Record Waste Description Inadequate
___ Contamination or Leakage Detected
___ Unexpected Exposure Rates Detected
___ Labels, Markings, etc. Inadequate
___ Container Integrity Inadequate
___ Other
___ No Violations Detected on this Shipment

20. TERMS AND CONDITIONS

A. HAZARDOUS MATERIALS: Generator represents & warrants that Waste Material __ is (or) ✓ is not a hazardous waste as defined in 40 CFR 261. Where the material is a hazardous waste, this shipment is also accompanied by a separate and completed hazardous waste manifest, along with the appropriate land-disposal restriction notice and/or certification as required by 40 CFR 268.1.

B. TITLE: Upon acceptance at the disposal site by EnergySolutions, LLC, and all appropriate regulatory authorities, title to the Waste Material which conforms to Generator's representations herein shall thereupon transfer from Generator and be vested in EnergySolutions, LLC

C. WASTE MATERIAL: Generator represents and warrants that all data set forth in this (UNIFORM LOW-LEVEL RADIOACTIVE WASTE MANIFEST) are true and correct in all respects and in accordance with all applicable governmental laws, rules, regulations and EnergySolutions LLC's facility license.

D. INDEMNIFICATION: Generator agrees to indemnify EnergySolutions, LLC, its officers, employees and agents against all losses and liability whatsoever if such losses or liability results from: the failure of the Waste Material to conform in all material respects to the data supplied on the (UNIFORM LOW-LEVEL RADIOACTIVE WASTE MANIFEST,) or if this shipment fails to meet the standards prescribed by the Department of Transportation or any governmental agency having jurisdiction over such matters.

FORM 540A

EnergySolutions, LLC

UNIFORM LOW-LEVEL RADIOACTIVE WASTE MANIFEST
SHIPPING PAPER (CONTINUATION)

8. MANIFEST NUMBER (Use this number on all continuation pages) 9652-01-0001

Page 2 of 2

11. U.S. DEPARTMENT OF TRANSPORTATION DESCRIPTION (including proper shipping name, hazard class, UN ID number, and any additional information)	12. DOT LABEL "RADIOACTIVE"	13. TRANSPORT INDEX	14. PHYSICAL AND CHEMICAL FORM	15. INDIVIDUAL RADIONUCLIDES			16. TOTAL PACKAGE ACTIVITY MBq	mCi	17. LSA/SCO CLASS	18. TOTAL WEIGHT OR VOLUME (Use appropriate units)	19. IDENTIFICATION NUMBER OF PACKAGE
Radioactive material, low specific activity (LSA-I), 7, UN 2912 , Thorium Impacted Soils	NA	NA	solid metal oxides	K-40	Th-(nat)	U-(nat)	1.7705E+00	4.7850E-02	LSA-I	2500 LBS; 27 FT3	Bag 38
Radioactive material, low specific activity (LSA-I), 7, UN 2912 , Thorium Impacted Soils	NA	NA	solid metal oxides	K-40	Th-(nat)	U-(nat)	1.7705E+00	4.7850E-02	LSA-I	2500 LBS; 27 FT3	Bag 39
Radioactive material, low specific activity (LSA-I), 7, UN 2912 , Thorium Impacted Soils	NA	NA	solid metal oxides	K-40	Th-(nat)	U-(nat)	1.7705E+00	4.7850E-02	LSA-I	2500 LBS; 27 FT3	Bag 42
Radioactive material, low specific activity (LSA-I), 7, UN 2912 , Thorium Impacted Soils	NA	NA	solid metal oxides	K-40	Th-(nat)	U-(nat)	1.7705E+00	4.7850E-02	LSA-I	2500 LBS; 27 FT3	Bag 45
Radioactive material, low specific activity (LSA-I), 7, UN 2912 , Thorium Impacted Soils	NA	NA	solid metal oxides	K-40	Th-(nat)	U-(nat)	1.7705E+00	4.7850E-02	LSA-I	2500 LBS; 27 FT3	Bag 48
Radioactive material, low specific activity (LSA-I), 7, UN 2912 , Thorium Impacted Soils	NA	NA	solid metal oxides	K-40	Th-(nat)	U-(nat)	1.7705E+00	4.7850E-02	LSA-I	2500 LBS; 27 FT3	Bag 51
Radioactive material, low specific activity (LSA-I), 7, UN 2912 , Thorium Impacted Soils	NA	NA	solid metal oxides	K-40	Th-(nat)	U-(nat)	1.7705E+00	4.7850E-02	LSA-I	2500 LBS; 27 FT3	Bag 56
Radioactive material, low specific activity (LSA-I), 7, UN 2912 , Thorium Impacted Soils	NA	NA	solid metal oxides	K-40	Th-(nat)	U-(nat)	1.7705E+00	4.7850E-02	LSA-I	2500 LBS; 27 FT3	Bag 57

FORM 540A (03-06)

FORM 541

EnergySolutions, LLC

UNIFORM LOW-LEVEL RADIOACTIVE WASTE MANIFEST

CONTAINER AND WASTE DESCRIPTION

Additional Nuclear Regulatory Commission (NRC) Requirements for Control, Transfer and Disposal of Radioactive Waste

1. MANIFEST TOTALS

NUMBER OF PACKAGES/ DISPOSAL CONTAINERS	NET WASTE VOLUME	NET WASTE WEIGHT	SPECIAL NUCLEAR MATERIAL (grams) U-233	U-235	Pu	Total
14	m3 10.7044	kg 16876.7340	NP	NP	NP	NP
	ft3 378.0000	ton 17.6000				

ACTIVITY	ALL NUCLIDES	TRITIUM	C-14	Tc-99	I-129	SOURCE (kg)	
MBq	2.4786E+01	NP	NP	NP	NP	(kg)	2.1575E+00
mCi	6.6990E-01	NP	NP	NP	NP	(tons)	2.3783E-03

2. MANIFEST NUMBER 9852-01-0001

3. PAGE 1 OF 4 PAGE(S)

4. SHIPPER NAME
RONALD MCDONALD HOUSE OF CHARITIES OF CHICAGO

SHIPMENT ID NUMBER
9852-01-0001

5. CONTAINER IDENTIFICATION NUMBER/ GENERATOR ID NUMBER(S)	6. CONTAINER DESCRIPTION (See Note 1 & Note 1A)	7. VOLUME (m3)/(ft3)	8. WASTE AND CONTAINER WEIGHT (kg)/(ton)	9. SURFACE RADIATION LEVEL (mSv/hr)/(mrem/hr)	10. SURFACE CONTAMINATION (MBq/100 cm2)/(dpm/100cm2) ALPHA	BETA-GAMMA	11. WASTE DESCRIPTOR (See Note 2 & Note 2A)	12. APPROXIMATE WASTE VOLUME(S) IN CONTAINER (m3)/(FT3)	13. SOLIDIFICATION OR STABILIZATION MEDIA (See Note 3)	14. CHEMICAL FORM/ CHELATING AGENT	WEIGHT % CHELATING AGENT IF > 0.1%	15. RADIOLOGICAL DESCRIPTION: INDIVIDUAL RADIONUCLIDES AND ACTIVITY (MBq) AND CONTAINER TOTAL; OR CONTAINER TOTAL ACTIVITY AND RADIONUCLIDE PERCENT — RADIONUCLIDES	pCi/gm	MBq	mCi	16. WASTE CLASSIFICATION AS-Class A Stable AU-Class A Unstable B-Class B C-Class C
Bag 26/007	19 LIFT LINER	0.7646	1133.9810	<1.0000E-03	<3.6740E-06	<3.6740E-05	22-HJ	0.7646	100 100	metal oxides/none	NP	K-40	9.30000E+00	3.8850E-01	1.0500E-02	AU
												Th-(nat) [1.4700E-01 kg]	2.85000E+01	1.1951E+00	3.2300E-02	
		27.0000	1.2500	<1.0000E-01	<2.2000E+02	<2.2000E+03		27.0000				U-(nat) [7.1100E-03 kg]	4.40000E+00	1.8685E-01	5.0500E-03	
												Subtotal		1.7705E+00	4.7850E-02	
												Total		1.7705E+00	4.7850E-02	
												Source [1.5411E-01 kg]				
Bag 26/007	19 LIFT LINER	0.7646	1133.9810	<1.0000E-03	<3.6740E-06	<3.6740E-05	22-HJ	0.7646	100 100	metal oxides/none	NP	K-40	9.30000E+00	3.8850E-01	1.0500E-02	AU
												Th-(nat) [1.4700E-01 kg]	2.85000E+01	1.1951E+00	3.2300E-02	
		27.0000	1.2500	<1.0000E-01	<2.2000E+02	<2.2000E+03		27.0000				U-(nat) [7.1100E-03 kg]	4.40000E+00	1.8685E-01	5.0500E-03	
												Subtotal		1.7705E+00	4.7850E-02	
												Total		1.7705E+00	4.7850E-02	
												Source [1.5411E-01 kg]				
Bag 26/007	19 LIFT LINER	0.7646	1133.9810	<1.0000E-03	<3.6740E-06	<3.6740E-05	22-HJ	0.7646	100 100	metal oxides/none	NP	K-40	9.30000E+00	3.8850E-01	1.0500E-02	AU
												Th-(nat) [1.4700E-01 kg]	2.85000E+01	1.1951E+00	3.2300E-02	
		27.0000	1.2500	<1.0000E-01	<2.2000E+02	<2.2000E+03		27.0000				U-(nat) [7.1100E-03 kg]	4.40000E+00	1.8685E-01	5.0500E-03	
												Subtotal		1.7705E+00	4.7850E-02	
												Total		1.7705E+00	4.7850E-02	
												Source [1.5411E-01 kg]				

Note 1: Container Description Codes. For containers/waste requiring disposal in approved structural overpacks the numerical code must be followed by "-OP."

1. Wooden Box or Crate
2. Metal Box
3. Plastic Drum or Pail
4. Metal Drum or Pail
5. Metal Tank or Liner
6. Concrete Tank or Liner
7. Polyethlene Tank or Liner
8. Fiberglass Tank or Liner
9. Demineralizer
10. Gas Cylinder
11. Bulk, Unpackaged Waste
12. Unpackaged Components
13. High Integrity Container
19. Other. Describe in Item 6, or additional page

Note 1A: Bulk Packaging Description Codes. (Choose one code as may be applicable.)

A Gondola
B Intermodal
C End-Dump
D Roll-off
E Seavan

NOTE 2: Waste Descriptor Codes. (Choose up to three which predominate by volume.)

20. Charcoal
21. Incinerator Ash
22. Soil
23. Gas
24. Oil
25. Aqueous Liquid
26. Filter Media
27. Mechanical Filter
28. EPA or State Hazardous
29. Demolition Rubble
30. Cation Ion-exchange Media
31. Anion Ion-exchange Media
32. Mixed Bed Ion-exchange Media
33. Contaminated Equipment
34. Organic Liquid (except oil)
35. Glassware or Labware
36. Sealed Source/Device
37. Paint or Plating
38. Evaporator Bottoms/Sludges/ Concentrates
39. Compactible Trash
40. Noncompactible Trash
41. Animal Carcass
42. Biological Material (except animal carcass)
43. Activated Material
59. Other. Describe in Item 11, or additional page

NOTE 2A: Specific Waste Descriptions (Choose all applicable codes.)

G Dewatered
H Solid
I Combustible
J Non-combustible
K Air Filtration Filters
L Asbestos

Note3: Solidification and Stabilization Media Codes. (Choose up to three which predominate by volume.) For media meeting disposal site structural stability requirements, the numerical code must be followed by "-S." and the media vendor and brand name must also be identified in Item 13. Code 100=NONE REQUIRED.

Solidification
90. Cement
91. Concrete (encapsulation)
92. Bitumen
93. Vinyl Chloride
94. Vinyl Ester Styrene
99. Other. Describe in Item 13, or additional page
100. None Required.

FORM 541 (03-06)

FORM 541A

UNIFORM LOW-LEVEL RADIOACTIVE WASTE MANIFEST

CONTAINER AND WASTE DESCRIPTION (CONTINUATION)

EnergySolutions, LLC

2. MANIFEST NUMBER 9852-01-0001

3. PAGE 2 OF 4 PAGE(S)

DISPOSAL CONTAINER DESCRIPTION							WASTE DESCRIPTION FOR EACH WASTE TYPE IN CONTAINER							18. WASTE CLASSIFICATION A/B-Class A Stable A/B-Class A Unstable B-Class B C-Class C
5. CONTAINER IDENTIFICATION NUMBER/ GENERATOR ID NUMBER(S)	6. CONTAINER DESCRIPTION (See Note 1 & Note 1A)	7. VOLUME (m3) / (ft3)	8. WASTE AND CONTAINER WEIGHT (kg) / (ton)	9. SURFACE RADIATION LEVEL (mSv/hr) (mrem/hr)	10. SURFACE CONTAMINATION (MBq/100 cm2) / (dpm/100cm2) ALPHA	BETA-GAMMA	PHYSICAL DESCRIPTION 11. WASTE DESCRIPTOR (See Note 2 & Note 2A)	12. APPROXIMATE WASTE VOLUME(S) IN CONTAINER (m3) / (FT3)	13. SOLIDIFICATION OR STABILIZATION MEDIA (See Note 3)	14. CHEMICAL DESCRIPTION CHEMICAL FORM/ CHELATING AGENT	WEIGHT % CHELATING AGENT IF > 0.1%	16. RADIOLOGICAL DESCRIPTION INDIVIDUAL RADIONUCLIDES AND ACTIVITY (MBq) AND CONTAINER TOTAL; OR CONTAINER TOTAL ACTIVITY AND RADIONUCLIDE PERCENT				
												RADIONUCLIDES	pCi/gm	MBq	mCi	
Bag 30/007	19 LIFT LINER	0.7646	1133.9810	<1.0000E-03	<3.6740E-06	<3.6740E-06	22-HJ	0.7646	100 100	metal oxides/none	NP	K-40	9.30000E+00	3.8850E-01	1.0500E-02	AU
												Th-(nat) [1.4700E-01 kg]	2.85000E+01	1.1951E+00	3.2300E-02	
		27.0000	1.2500	<1.0000E-01	<2.2000E+02	<2.2000E+03		27.0000				U-(nat) [7.1100E-03 kg]	4.40000E+00	1.8685E-01	5.0500E-03	
												Subtotal		1.7705E+00	4.7850E-02	
												Total Source [1.5411E-01 kg]		1.7705E+00	4.7850E-02	
Bag 32/007	19 LIFT LINER	0.7646	1133.9810	<1.0000E-03	<3.6740E-06	<3.6740E-06	22-HJ	0.7646	100 100	metal oxides/none	NP	K-40	9.30000E+00	3.8850E-01	1.0500E-02	AU
												Th-(nat) [1.4700E-01 kg]	2.85000E+01	1.1951E+00	3.2300E-02	
		27.0000	1.2500	<1.0000E-01	<2.2000E+02	<2.2000E+03		27.0000				U-(nat) [7.1100E-03 kg]	4.40000E+00	1.8685E-01	5.0500E-03	
												Subtotal		1.7705E+00	4.7850E-02	
												Total Source [1.5411E-01 kg]		1.7705E+00	4.7850E-02	
Bag 38/007	19 LIFT LINER	0.7646	1133.9810	<1.0000E-03	<3.6740E-06	<3.6740E-06	22-HJ	0.7646	100 100	metal oxides/none	NP	K-40	9.30000E+00	3.8850E-01	1.0500E-02	AU
												Th-(nat) [1.4700E-01 kg]	2.85000E+01	1.1951E+00	3.2300E-02	
		27.0000	1.2500	<1.0000E-01	<2.2000E+02	<2.2000E+03		27.0000				U-(nat) [7.1100E-03 kg]	4.40000E+00	1.8685E-01	5.0500E-03	
												Subtotal		1.7705E+00	4.7850E-02	
												Total Source [1.5411E-01 kg]		1.7705E+00	4.7850E-02	
Bag 39/007	19 LIFT LINER	0.7646	1133.9810	<1.0000E-03	<3.6740E-06	<3.6740E-06	22-HJ	0.7646	100 100	metal oxides/none	NP	K-40	9.30000E+00	3.8850E-01	1.0500E-02	AU
												Th-(nat) [1.4700E-01 kg]	2.85000E+01	1.1951E+00	3.2300E-02	
		27.0000	1.2500	<1.0000E-01	<2.2000E+02	<2.2000E+03		27.0000				U-(nat) [7.1100E-03 kg]	4.40000E+00	1.8685E-01	5.0500E-03	
												Subtotal		1.7705E+00	4.7850E-02	
												Total Source [1.5411E-01 kg]		1.7705E+00	4.7850E-02	
Bag 39/007	19 LIFT LINER	0.7646	1133.9810	<1.0000E-03	<3.6740E-06	<3.6740E-06	22-HJ	0.7646	100 100	metal oxides/none	NP	K-40	9.30000E+00	3.8850E-01	1.0500E-02	AU
												Th-(nat) [1.4700E-01 kg]	2.85000E+01	1.1951E+00	3.2300E-02	
		27.0000	1.2500	<1.0000E-01	<2.2000E+02	<2.2000E+03		27.0000				U-(nat) [7.1100E-03 kg]	4.40000E+00	1.8685E-01	5.0500E-03	
												Subtotal		1.7705E+00	4.7850E-02	

FORM 541A (03-06)

FORM 541A

UNIFORM LOW-LEVEL RADIOACTIVE WASTE MANIFEST

CONTAINER AND WASTE DESCRIPTION (CONTINUATION)

EnergySolutions, LLC

2. MANIFEST NUMBER: 9452-01-0001

3. PAGE 3 OF 4 PAGE(S)

DISPOSAL CONTAINER DESCRIPTION							WASTE DESCRIPTION FOR EACH WASTE TYPE IN CONTAINER							
							PHYSICAL DESCRIPTION			14. CHEMICAL DESCRIPTION		15. RADIOLOGICAL DESCRIPTION				16. WASTE CLASSIFICATION A/B-Class A Stable A/U-Class A Unstable B-Class B C-Class C
5. CONTAINER IDENTIFICATION NUMBER/ GENERATOR ID NUMBER(S)	6. CONTAINER DESCRIPTION (See Note 1 & Note 1A)	7. VOLUME (m3) / (ft3)	8. WASTE AND CONTAINER WEIGHT (kg) / (ton)	9. SURFACE RADIATION LEVEL (mSv/hr) / (mrem/hr)	10. SURFACE CONTAMINATION (MBq/100 cm2) / (dpm/100cm2) ALPHA	BETA-GAMMA	11. WASTE DESCRIPTOR (See Note 2 & Note 2A)	12. APPROXIMATE WASTE VOLUME(6) IN CONTAINER (m3) / (FT3)	13. SOLIDIFICATION OR STABILIZATION MEDIA (See Note 3)	CHEMICAL FORM/ CHELATING AGENT	WEIGHT % CHELATING AGENT IF > 0.1%	INDIVIDUAL RADIONUCLIDES AND ACTIVITY (MBq) AND CONTAINER TOTAL; OR CONTAINER TOTAL ACTIVITY AND RADIONUCLIDE PERCENT RADIONUCLIDES	pCi/gm	MBq	mCi	
												Total		1.7705E+00	4.7850E-02	
												Source [1.5411E-01 kg]				
Bag 43/007	19 LIFT LINER	0.7646	1133.9910	<1.0000E-03	<3.6740E-06	<3.6740E-06	22-HJ	0.7646	100 100	metal oxides/none	NP	K-40	9.30000E+00	3.8850E-01	1.0500E-02	AU
		27.0000	1.2500	<1.0000E-01	<2.2000E+02	<2.2000E+03		27.0000				Th-(nat) [1.4700E-01 kg]	2.85000E+01	1.1951E+00	3.2300E-02	
												U-(nat) [7.1100E-03 kg]	4.40000E+00	1.8885E-01	5.0500E-03	
												Subtotal		1.7705E+00	4.7850E-02	
												Total		1.7705E+00	4.7850E-02	
												Source [1.5411E-01 kg]				
Bag 45/007	19 LIFT LINER	0.7646	1133.9910	<1.0000E-03	<3.6740E-06	<3.6740E-06	22-HJ	0.7646	100 100	metal oxides/none	NP	K-40	9.30000E+00	3.8850E-01	1.0500E-02	AU
		27.0000	1.2500	<1.0000E-01	<2.2000E+02	<2.2000E+03		27.0000				Th-(nat) [1.4700E-01 kg]	2.85000E+01	1.1951E+00	3.2300E-02	
												U-(nat) [7.1100E-03 kg]	4.40000E+00	1.8885E-01	5.0500E-03	
												Subtotal		1.7705E+00	4.7850E-02	
												Total		1.7705E+00	4.7850E-02	
												Source [1.5411E-01 kg]				
Bag 48/007	19 LIFT LINER	0.7646	1133.9910	<1.0000E-03	<3.6740E-06	<3.6740E-06	22-HJ	0.7646	100 100	metal oxides/none	NP	K-40	9.30000E+00	3.8850E-01	1.0500E-02	AU
		27.0000	1.2500	<1.0000E-01	<2.2000E+02	<2.2000E+03		27.0000				Th-(nat) [1.4700E-01 kg]	2.85000E+01	1.1951E+00	3.2300E-02	
												U-(nat) [7.1100E-03 kg]	4.40000E+00	1.8885E-01	5.0500E-03	
												Subtotal		1.7705E+00	4.7850E-02	
												Total		1.7705E+00	4.7850E-02	
												Source [1.5411E-01 kg]				
Bag 51/007	19 LIFT LINER	0.7646	1133.9910	<1.0000E-03	<3.6740E-06	<3.6740E-06	22-HJ	0.7646	100 100	metal oxides/none	NP	K-40	9.30000E+00	3.8850E-01	1.0500E-02	AU
		27.0000	1.2500	<1.0000E-01	<2.2000E+02	<2.2000E+03		27.0000				Th-(nat) [1.4700E-01 kg]	2.85000E+01	1.1951E+00	3.2300E-02	
												U-(nat) [7.1100E-03 kg]	4.40000E+00	1.8885E-01	5.0500E-03	
												Subtotal		1.7705E+00	4.7850E-02	
												Total		1.7705E+00	4.7850E-02	
												Source [1.5411E-01 kg]				

EXCLUSIVE USE INSTRUCTIONS TO CARRIER

You are advised per these instructions to transport the items defined on the attached shipping documents under EXCLUSIVE USE PROVISIONS

Special Remarks Concerning EXCLUSIVE USE

Do not change configuration of load in vehicle
Do not transfer shipment from originating carrier vehicle
If necessary to change towing vehicle, notify tTA at 865-740-6870
Do not load other packages on originating vehicle
Deliver directly to consignee
Do not change the fifth wheel position (as applicable)
Do not change or remove placards. Radioactive Placards and Dangerous have been provided

Other Instructions and Requirements

Follow Applicable ERG's for Hazardous Materials Class 7 (162)

Markings, Labels and Placards have been inspected and are acceptable

Administrative Contacts

tTA (865) 740-6870

IN THE EVENT OF AN EMERGENCY, CONTACT:

~~**AECOM 847 343-6007**~~ TTA 865-740-6870

I understand that I have read and understand the above requirements and will comply with these Exclusive Use Instructions

Drivers Name (Printed) ART TREUSE

Drivers Signature _____ Date 1/4/11

STRAIGHT BILL OF LADING SHORT FORM NOT NEGOTIABLE

CARRIER: Landstar Trucking
Carrier No: 9852-01-0002

Shipment No: 9852-01-0002

Date: 01/04/2011

Received, subject to the classifications and tariffs in effect on the date of the issue of this Bill of Lading, the property described below in apparent good order, except as noted (contents and condition of contents of packages unknown), marked, consigned, and destined as indicated below, which said carrier agrees to carry to its usual place of delivery. If on its route, otherwise to deliver to another carrier on the route to said destination. It is mutually agreed as to each carrier of all or any of said routes to destination and as to each party at any time interested in all or any of said property, that every service to be performed hereunder shall be subject to all Bill of Lading terms and conditions in the governing classification on the date of shipment. The shipper hereby certifies that he is familiar with all the Bill of Lading terms and conditions in the governing classification and the said terms and conditions are hereby agreed to by the shipper and accepted for himself and his assigns.

Consignee: Energy Solutions, LLC
Clive Disposal Site (Bulk Waste Facility)
Interstate 80, Exit 49
Clive, UT 84029

Shipper: Ronald McDonald House of Charities of Chicago

Site: 211 E. Grand Chicago, IL 60601

Tractor Number: 405188 Trailer Number: 505188

No. Pkgs.	HM	Description of Material	Weight (lbs.)	Class	ERG
14	X	Radioactive material, low specific activity (LSA-I), 7, UN2912, Thorium Impacted Soils	35000	7	162
		Radionuclides: K-40, Th-(nat), U-(nat) Total Activity: 2.4786E+01 MBq Physical Form: Solid, Chemical Form: Oxides			
		Label: None, Placarded: "Radioactive"			

Subject to section 7 of conditions of applicable Bill of Lading, if this shipment is to be delivered to the consignee without recourse on the consignor, the consignor shall sign the following statement:

The carrier shall not make delivery of this shipment without payment of freight and all other lawful charges.

N/A
Signature of the Consignor

If freight charges are to be pre-paid, write or stamp here "TO BE PREPAID".

N/A

865-740-6870

24 HOUR Emergency Contact Number: ~~1-847-343-6001~~ 71

Notice: For additional information contact: Timothy Mock @ 865-740-6870
Exclusive Use Shipment

NOTE: Where the rate is dependant on value, shippers are required to state specifically in writing the agreed on value of the property:
The agreed on or declared value of the property is hereby specifically stated by the shipper to be not exceeding:

N/A
$_____ per _____ (unit)

SS741 Reference
N/A

Marking/Label(s) applied:
"Radioactive"

Placard(s) required:
Class 7

This is to certify that the above named materials are properly described, packaged, marked, and labeled, and are in proper condition for transportation according to the applicable regulations of the U.S. Department of Transportation.

Shipper: Timothy Mock
Contract with: TA/ICE
Per: On behalf of Ronald McDonald House

The additions on the face hereof and the terms and conditions are hereby noted:
Carrier: Landstar Trucking
Per: _____ Date: 1/4/2011
Print: Greg Wilson

AECOM
Copy

FORM 540 — **EnergySolutions, LLC**

UNIFORM LOW-LEVEL RADIOACTIVE WASTE MANIFEST
SHIPPING PAPER

1. EMERGENCY TELEPHONE NUMBER (Include Area Code)
~~847 343 6007~~ 865-740-6870

ORGANIZATION
~~ARCOM~~ TTA

2. IS THIS AN "EXCLUSIVE USE" SHIPMENT?
☑ YES
☐ NO

3. TOTAL NUMBER OF PACKAGES IDENTIFIED ON THIS MANIFEST → 14

4. DOES EPA REGULATED WASTE REQUIRING A MANIFEST ACCOMPANY THIS SHIPMENT? ☐ YES ☑ NO
If "Yes," provide Manifest Number →

EPA MANIFEST NUMBER

5. SHIPPER – NAME AND FACILITY
RONALD MCDONALD HOUSE OF CHARITIES OF CHICAGO
211 EAST GRAND
CHICAGO, IL 60601

SHIPPER I.D. NUMBER
9852-01-0002
☐ COLLECTOR
☐ PROCESSOR
☑ GENERATOR TYPE (Specify) O

Utah Generator Site Access Permit No.
1012000320

SHIPMENT NUMBER
9852-01-0002

TELEPHONE NUMBER (Include Area Code)
1-630-423-6907

CONTACT
DOUG PORTER

6. CARRIER – Name and Address
Landstar Trucking
13410 Sutton Park South
Jacksonville, FL 32224

EPA I.D. NUMBER
FLR 000 067 157

SHIPPING DATE
01/04/2011

CONTACT
Brandon Coburn

TELEPHONE (Include Area Code)
800-872-9825

SIGNATURE – Authorized carrier acknowledging waste receipt [signature]

DATE 1/4/11

7. FORM 540 AND 540A — PAGE 1 OF 2 PAGE(S)
FORM 541 AND 541A — 4 PAGE(S)
FORM 542 AND 542A — None PAGE(S)
ADDITIONAL INFORMATION — None PAGE(S)

8. MANIFEST NUMBER
(Use this number on all continuation pages)
9852-01-0002

9. CONSIGNEE - Name and Facility
EnergySolutions, LLC
Clive Disposal Site (Bulk Waste Facility)
Interstate 80, Exit 49
Clive, UT 84029

CONTACT
Transportation Compliance

TELEPHONE (Include Area Code)
(435)884-0155

SIGNATURE – Authorized consignee acknowledging waste receipt

DATE

10. CERTIFICATION

This is to certify that the herein-named materials are properly classified, described, packaged, marked, and labeled and are in proper condition for transportation according to the applicable regulations of the Department of Transportation. This also certifies that the materials are classified, packaged, marked, and labeled and are in proper condition for transportation and disposal as described in accordance with the requirements of 10 CFR Parts 20 and 61, or equivalent state regulations.

AUTHORIZED SIGNATURE [signature]
TITLE Shipper TTA/IIE / Ronald McD House
DATE 1/4/11

11. U.S. DEPARTMENT OF TRANSPORTATION DESCRIPTION (Including proper shipping name, hazard class, UN ID number, and any additional information)	12. DOT LABEL "RADIOACTIVE"	13. TRANSPORT INDEX	14. PHYSICAL AND CHEMICAL FORM	15. INDIVIDUAL RADIONUCLIDES			16. TOTAL PACKAGE ACTIVITY MBq	mCi	17. LSA/SCO CLASS	18. TOTAL WEIGHT OR VOLUME (Use appropriate units)	19. IDENTIFICATION NUMBER OF PACKAGE
Radioactive material, low specific activity (LSA-I), 7, UN 2912 , Thorium Impacted Soils	NA	NA	solid metal oxides	K-40	Th-(nat)	U-(nat)	1.7705E+00	4.7850E-02	LSA-I	2500 LBS; 27 FT3	Bag 05
Radioactive material, low specific activity (LSA-I), 7, UN 2912 , Thorium Impacted Soils	NA	NA	solid metal oxides	K-40	Th-(nat)	U-(nat)	1.7705E+00	4.7850E-02	LSA-I	2500 LBS; 27 FT3	Bag 10
Radioactive material, low specific activity (LSA-I), 7, UN 2912 , Thorium Impacted Soils	NA	NA	solid metal oxides	K-40	Th-(nat)	U-(nat)	1.7705E+00	4.7850E-02	LSA-I	2500 LBS; 27 FT3	Bag 11
Radioactive material, low specific activity (LSA-I), 7, UN 2912 , Thorium Impacted Soils	NA	NA	solid metal oxides	K-40	Th-(nat)	U-(nat)	1.7705E+00	4.7850E-02	LSA-I	2500 LBS; 27 FT3	Bag 27
Radioactive material, low specific activity (LSA-I), 7, UN 2912 , Thorium Impacted Soils	NA	NA	solid metal oxides	K-40	Th-(nat)	U-(nat)	1.7705E+00	4.7850E-02	LSA-I	2500 LBS; 27 FT3	Bag 29
Radioactive material, low specific activity (LSA-I), 7, UN 2912 , Thorium Impacted Soils	NA	NA	solid metal oxides	K-40	Th-(nat)	U-(nat)	1.7705E+00	4.7850E-02	LSA-I	2500 LBS; 27 FT3	Bag 31

FOR CONSIGNEE USE ONLY

____ Record Waste Description Inadequate
____ Contamination or Leakage Detected
____ Unexpected Exposure Rates Detected
____ Labels, Markings, etc. Inadequate
____ Container Integrity Inadequate
____ Other
____ No Violations Detected on this Shipment

20. TERMS AND CONDITIONS

A. HAZARDOUS MATERIALS: Generator represents & warrants that Waste Material __ is (or) ✓ is not a hazardous waste as defined in 40 CFR 261. Where the material is a hazardous waste, this shipment is also accompanied by a separate and completed hazardous waste manifest, along with the appropriate land-disposal restriction notice and/or certification as required by 40 CFR 268.1.

B. TITLE: Upon acceptance at the disposal site by EnergySolutions, LLC, and all appropriate regulatory authorities, title to the Waste Material which conforms to Generator's representations herein shall thereupon transfer from Generator and be vested in EnergySolutions, LLC

C. WASTE MATERIAL: Generator represents and warrants that all data set forth in this (UNIFORM LOW-LEVEL RADIOACTIVE WASTE MANIFEST) are true and correct in all respects and in accordance with all applicable governmental laws, rules, regulations and EnergySolutions LLC's facility license.

D. INDEMNIFICATION: Generator agrees to indemnify EnergySolutions, LLC, its officers, employees and agents against all losses and liability whatsoever if such losses or liability results from the failure of the Waste Material to conform in all material respects to the data supplied on the (UNIFORM LOW-LEVEL RADIOACTIVE WASTE MANIFEST,) or if this shipment fails to meet the standards prescribed by the Department of Transportation or any governmental agency having jurisdiction over such matters.

FORM 540A

UNIFORM LOW-LEVEL RADIOACTIVE WASTE MANIFEST
SHIPPING PAPER (CONTINUATION)

EnergySolutions, LLC

8. MANIFEST NUMBER (Use this number on all continuation pages) 9852-01-0002

Page 2 of 2

11. U.S. DEPARTMENT OF TRANSPORTATION DESCRIPTION (Including proper shipping name, hazard class, UN ID number, and any additional information)	12. DOT LABEL "RADIOACTIVE"	13. TRANSPORT INDEX	14. PHYSICAL AND CHEMICAL FORM	15. INDIVIDUAL RADIONUCLIDES			16. TOTAL PACKAGE ACTIVITY MBq	mCi	17. LSA/SCO CLASS	18. TOTAL WEIGHT OR VOLUME (Use appropriate units)	19. IDENTIFICATION NUMBER OF PACKAGE
Radioactive material, low specific activity (LSA-I), 7, UN 2912 , Thorium Impacted Soils	NA	NA	solid metal oxides	K-40	Th-(nat)	U-(nat)	1.7705E+00	4.7850E-02	LSA-I	2500 LBS; 27 FT3	Bag 32
Radioactive material, low specific activity (LSA-I), 7, UN 2912 , Thorium Impacted Soils	NA	NA	solid metal oxides	K-40	Th-(nat)	U-(nat)	1.7705E+00	4.7850E-02	LSA-I	2500 LBS; 27 FT3	Bag 34
Radioactive material, low specific activity (LSA-I), 7, UN 2912 , Thorium Impacted Soils	NA	NA	solid metal oxides	K-40	Th-(nat)	U-(nat)	1.7705E+00	4.7850E-02	LSA-I	2500 LBS; 27 FT3	Bag 37
Radioactive material, low specific activity (LSA-I), 7, UN 2912 , Thorium Impacted Soils	NA	NA	solid metal oxides	K-40	Th-(nat)	U-(nat)	1.7705E+00	4.7850E-02	LSA-I	2500 LBS; 27 FT3	Bag 41
Radioactive material, low specific activity (LSA-I), 7, UN 2912 , Thorium Impacted Soils	NA	NA	solid metal oxides	K-40	Th-(nat)	U-(nat)	1.7705E+00	4.7850E-02	LSA-I	2500 LBS; 27 FT3	Bag 44
Radioactive material, low specific activity (LSA-I), 7, UN 2912 , Thorium Impacted Soils	NA	NA	solid metal oxides	K-40	Th-(nat)	U-(nat)	1.7705E+00	4.7850E-02	LSA-I	2500 LBS; 27 FT3	Bag 47
Radioactive material, low specific activity (LSA-I), 7, UN 2912 , Thorium Impacted Soils	NA	NA	solid metal oxides	K-40	Th-(nat)	U-(nat)	1.7705E+00	4.7850E-02	LSA-I	2500 LBS; 27 FT3	Bag 49
Radioactive material, low specific activity (LSA-I), 7, UN 2912 , Thorium Impacted Soils	NA	NA	solid metal oxides	K-40	Th-(nat)	U-(nat)	1.7705E+00	4.7850E-02	LSA-I	2500 LBS; 27 FT3	Bag 50

FORM 540A (03-06)

FORM 541 — EnergySolutions, LLC

UNIFORM LOW-LEVEL RADIOACTIVE WASTE MANIFEST

CONTAINER AND WASTE DESCRIPTION

Additional Nuclear Regulatory Commission (NRC) Requirements for Control, Transfer and Disposal of Radioactive Waste

1. MANIFEST TOTALS

NUMBER OF PACKAGES/ DISPOSAL CONTAINERS	NET WASTE VOLUME	NET WASTE WEIGHT	SPECIAL NUCLEAR MATERIAL (grams) U-233	U-235	Pu	Total
14	m3 10.7044 / ft3 378.0000	kg 16875.7340 / ton 17.5000	NP	NP	NP	NP

ACTIVITY	ALL NUCLIDES	TRITIUM	C-14	Tc-99	I-129	SOURCE (kg)
MBq	2.4756E+01	NP	NP	NP	NP	(kg) 2.1675E+00
mCi	6.6930E-01	NP	NP	NP	NP	(tons) 2.3783E-03

2. MANIFEST NUMBER: 9652-01-0002

3. PAGE 1 OF 4 PAGE(S)

4. SHIPPER NAME: RONALD MCDONALD HOUSE OF CHARITIES OF CHICAGO

SHIPMENT ID NUMBER: 9652-01-0002

DISPOSAL CONTAINER DESCRIPTION							WASTE DESCRIPTION FOR EACH WASTE TYPE IN CONTAINER								18. WASTE CLASSIFICATION A/S-Class A Stable A/U-Class A Unstable B-Class B C-Class C
5. CONTAINER IDENTIFICATION NUMBER/ GENERATOR ID NUMBER(S)	6. CONTAINER DESCRIPTION (See Note 1 & Note 1A)	7. VOLUME (m3) / (ft3)	8. WASTE AND CONTAINER WEIGHT (kg) / (ton)	9. SURFACE RADIATION LEVEL (mR/hr) (mrem/hr)	10. SURFACE CONTAMINATION (MBq/100 cm2) (dpm/100cm2) ALPHA	BETA-GAMMA	PHYSICAL DESCRIPTION 11. WASTE DESCRIPTOR (See Note 2 & Note 2A)	12. APPROXIMATE WASTE VOLUME(S) IN CONTAINER (m3) / (FT3)	13. SOLIDIFICATION OR STABILIZATION MEDIA (See Note 3)	14. CHEMICAL DESCRIPTION CHEMICAL FORM/ CHELATING AGENT	WEIGHT % CHELATING AGENT IF > 0.1%	15. RADIOLOGICAL DESCRIPTION INDIVIDUAL RADIONUCLIDES AND ACTIVITY (MBq) AND CONTAINER TOTAL; OR CONTAINER TOTAL ACTIVITY AND RADIONUCLIDE PERCENT				
												RADIONUCLIDES	pCi/gm	MBq	mCi	
Bag 08/007	19 LIFT LINER	0.7646	1133.9810	<1.0000E-03	<3.6740E-06	<3.6740E-06	22-HJ	0.7646	100 100	metal oxides/none	NP	K-40	9.30000E+00	3.8850E-01	1.0500E-02	AU
												Th-(nat) [1.4700E-01 kg]	2.85000E+01	1.1961E+00	3.2300E-02	
		27.0000	1.2800	<1.0000E-01	<2.2000E+02	<2.2000E+03		27.0000				U-(nat) [7.1100E-03 kg]	4.40000E+00	1.8885E-01	5.0500E-03	
												Subtotal		1.7705E+00	4.7850E-02	
												Total Source [1.5411E-01 kg]		1.7705E+00	4.7850E-02	
Bag 10/007	19 LIFT LINER	0.7646	1133.9810	2.0000E-06	<3.6740E-06	<3.6740E-06	22-HJ	0.7646	100 100	metal oxides/none	NP	K-40	9.30000E+00	3.8850E-01	1.0500E-02	AU
												Th-(nat) [1.4700E-01 kg]	2.85000E+01	1.1961E+00	3.2300E-02	
		27.0000	1.2800	2.0000E-01	<2.2000E+02	<2.2000E+03		27.0000				U-(nat) [7.1100E-03 kg]	4.40000E+00	1.8885E-01	5.0500E-03	
												Subtotal		1.7705E+00	4.7850E-02	
												Total Source [1.5411E-01 kg]		1.7705E+00	4.7850E-02	
Bag 11/007	19 LIFT LINER	0.7646	1133.9810	<1.0000E-03	<3.6740E-06	<3.6740E-06	22-HJ	0.7646	100 100	metal oxides/none	NP	K-40	9.30000E+00	3.8850E-01	1.0500E-02	AU
												Th-(nat) [1.4700E-01 kg]	2.85000E+01	1.1961E+00	3.2300E-02	
		27.0000	1.2800	<1.0000E-01	<2.2000E+02	<2.2000E+03		27.0000				U-(nat) [7.1100E-03 kg]	4.40000E+00	1.8885E-01	5.0500E-03	
												Subtotal		1.7705E+00	4.7850E-02	
												Total Source [1.5411E-01 kg]		1.7705E+00	4.7850E-02	

Note 1: Container Description Codes. For containers/ waste requiring disposal in approved structural overpacks the numerical code must be followed by "-OP."

1. Wooden Box or Crate
2. Metal Box
3. Plastic Drum or Pail
4. Metal Drum or Pail
5. Metal Tank or Liner
6. Concrete Tank or Liner
7. Polyethlene Tank or Liner
8. Fiberglass Tank or Liner
9. Demineralizer
10. Gas Cylinder
11. Bulk, Unpackaged Waste
12. Unpackaged Components
13. High Integrity Container
19. Other. Describe in Item 6, or additional page

Note 1A: Bulk Packaging Description Codes. (Choose one code as may be applicable.)

A Gondola
B Intermodal
C End-Dump
D Roll-off
E Seaven

NOTE 2: Waste Descriptor Codes. (Choose up to three which predominate by volume.)

20. Charcoal
21. Incinerator Ash
22. Soil
23. Gas
24. Oil
25. Aqueous Liquid
26. Filter Media
27. Mechanical Filter
28. EPA or State Hazardous
29. Demolition Rubble
30. Cation Ion-exchange Media
31. Anion Ion-exchange Media
32. Mixed Bed Ion-exchange Media
33. Contaminated Equipment
34. Organic Liquid (except oil)
35. Glassware or Labware
36. Sealed Source/Device
37. Paint or Plating
38. Evaporator Bottoms/Sludges/ Concentrates
39. Compactible Trash
40. Noncompactible Trash
41. Animal Carcass
42. Biological Material (except animal carcass)
43. Activated Material
59. Other. Describe in Item 11, or additional page

NOTE 2A: Specific Waste Descriptions (Choose all applicable codes.)

G Dewatered
H Solid
I Combustible
J Non-combustible
K Air Filtration Filters
L Asbestos

Note3: Solidification and Stabilization Media Codes. (Choose up to three which predominate by volume.) For media meeting disposal site structural stability requirements, the numerical code must be followed by "-S." and the media vendor and brand name must also be identified

In Item 13, Code 100=NONE REQUIRED.

Solidification
90. Cement
91. Concrete (encapsulation)
92. Bitumen
93. Vinyl Chloride
94. Vinyl Ester Styrene
99. Other. Describe in Item 13, or additional page
100. None Required.

FORM 541 (03-06)

FORM 541A

UNIFORM LOW-LEVEL RADIOACTIVE WASTE MANIFEST

CONTAINER AND WASTE DESCRIPTION (CONTINUATION)

EnergySolutions, LLC

2. MANIFEST NUMBER 9852-01-0002

3. PAGE 2 OF 4 PAGE(S)

DISPOSAL CONTAINER DESCRIPTION							WASTE DESCRIPTION FOR EACH WASTE TYPE IN CONTAINER								
							PHYSICAL DESCRIPTION			14. CHEMICAL DESCRIPTION		15. RADIOLOGICAL DESCRIPTION			
5. CONTAINER IDENTIFICATION NUMBER/ GENERATOR ID NUMBER(S)	6. CONTAINER DESCRIPTION (See Note 1 & Note 1A)	7. VOLUME (m3) (ft3)	8. WASTE AND CONTAINER WEIGHT (kg) (ton)	9. SURFACE RADIATION LEVEL (mSv/hr) (mrem/hr)	10. SURFACE CONTAMINATION (MBq/100 cm2) (dpm/100cm2) ALPHA	BETA-GAMMA	11. WASTE DESCRIPTOR (See Note 2 & Note 2A)	12. APPROXIMATE WASTE VOLUME(S) IN CONTAINER (m3) (FT3)	13. SOLIDIFICATION OR STABILIZATION MEDIA (See Note 3)	CHEMICAL FORM/ CHELATING AGENT	WEIGHT % CHELATING AGENT IF > 0.1%	INDIVIDUAL RADIONUCLIDES AND ACTIVITY (MBq) AND CONTAINER TOTAL; OR CONTAINER TOTAL ACTIVITY AND RADIONUCLIDE PERCENT				16. WASTE CLASSIFICATION A/S-Class A Stable A/U-Class A Unstable B-Class B C-Class C
												RADIONUCLIDES	pCi/gm	MBq	mCi	
Bag 27/007	19 LIFT LINER	0.7646	1133.9610	<1.0000E-03	<3.6740E-06	<3.6740E-06	22-HJ	0.7646	100 100	metal oxides/none	NP	K-40	9.30000E+00	3.8850E-01	1.0500E-02	AU
		27.0000	1.2500	<1.0000E-01	<2.2000E+02	<2.2000E+03		27.0000				Th-(nat) [1.4700E-01 kg]	2.85000E+01	1.1951E+00	3.2300E-02	
												U-(nat) [7.1100E-03 kg]	4.40000E+00	1.8685E-01	5.0500E-03	
												Subtotal		1.7705E+00	4.7850E-02	
												Total Source [1.8411E-01 kg]		1.7705E+00	4.7850E-02	
Bag 29/007	19 LIFT LINER	0.7646	1133.9610	<1.0000E-03	<3.6740E-06	<3.6740E-06	22-HJ	0.7646	100 100	metal oxides/none	NP	K-40	9.30000E+00	3.8850E-01	1.0500E-02	AU
		27.0000	1.2500	<1.0000E-01	<2.2000E+02	<2.2000E+03		27.0000				Th-(nat) [1.4700E-01 kg]	2.85000E+01	1.1951E+00	3.2300E-02	
												U-(nat) [7.1100E-03 kg]	4.40000E+00	1.8685E-01	5.0500E-03	
												Subtotal		1.7705E+00	4.7850E-02	
												Total Source [1.8411E-01 kg]		1.7705E+00	4.7850E-02	
Bag 31/007	19 LIFT LINER	0.7646	1133.9610	<1.0000E-03	<3.6740E-06	<3.6740E-06	22-HJ	0.7646	100 100	metal oxides/none	NP	K-40	9.30000E+00	3.8850E-01	1.0500E-02	AU
		27.0000	1.2500	<1.0000E-01	<2.2000E+02	<2.2000E+03		27.0000				Th-(nat) [1.4700E-01 kg]	2.85000E+01	1.1951E+00	3.2300E-02	
												U-(nat) [7.1100E-03 kg]	4.40000E+00	1.8685E-01	5.0500E-03	
												Subtotal		1.7705E+00	4.7850E-02	
												Total Source [1.8411E-01 kg]		1.7705E+00	4.7850E-02	
Bag 32/007	19 LIFT LINER	0.7646	1133.9610	<1.0000E-03	<3.6740E-06	<3.6740E-06	22-HJ	0.7646	100 100	metal oxides/none	NP	K-40	9.30000E+00	3.8850E-01	1.0500E-02	AU
		27.0000	1.2500	<1.0000E-01	<2.2000E+02	<2.2000E+03		27.0000				Th-(nat) [1.4700E-01 kg]	2.85000E+01	1.1951E+00	3.2300E-02	
												U-(nat) [7.1100E-03 kg]	4.40000E+00	1.8685E-01	5.0500E-03	
												Subtotal		1.7705E+00	4.7850E-02	
												Total Source [1.8411E-01 kg]		1.7705E+00	4.7850E-02	
Bag 34/007	19 LIFT LINER	0.7646	1133.9610	<1.0000E-03	<3.6740E-06	<3.6740E-06	22-HJ	0.7646	100 100	metal oxides/none	NP	K-40	9.30000E+00	3.8850E-01	1.0500E-02	AU
		27.0000	1.2500	<1.0000E-01	<2.2000E+02	<2.2000E+03		27.0000				Th-(nat) [1.4700E-01 kg]	2.85000E+01	1.1951E+00	3.2300E-02	
												U-(nat) [7.1100E-03 kg]	4.40000E+00	1.8685E-01	5.0500E-03	
												Subtotal		1.7705E+00	4.7850E-02	

FORM 541A

UNIFORM LOW-LEVEL RADIOACTIVE WASTE MANIFEST

CONTAINER AND WASTE DESCRIPTION (CONTINUATION)

EnergySolutions, LLC

2. MANIFEST NUMBER: 9652-01-0002

3. PAGE 3 OF 4 PAGE(S)

DISPOSAL CONTAINER DESCRIPTION							WASTE DESCRIPTION FOR EACH WASTE TYPE IN CONTAINER								
							PHYSICAL DESCRIPTION			14. CHEMICAL DESCRIPTION		15. RADIOLOGICAL DESCRIPTION			
5. CONTAINER IDENTIFICATION NUMBER/ GENERATOR ID NUMBER(S)	6. CONTAINER DESCRIPTION (See Note 1 & Note 1A)	7. VOLUME (m3) (ft3)	8. WASTE AND CONTAINER WEIGHT (kg) (ton)	9. SURFACE RADIATION LEVEL (mSv/hr) (mrem/hr)	10. SURFACE CONTAMINATION (MBq/100 cm2) (dpm/100cm2) ALPHA	BETA-GAMMA	11. WASTE DESCRIPTOR (See Note 2 & Note 2A)	12. APPROXIMATE WASTE VOLUME(S) IN CONTAINER (m3) (FT3)	13. SOLIDIFICATION OR STABILIZATION MEDIA (See Note 3)	CHEMICAL FORM/ CHELATING AGENT	WEIGHT % CHELATING AGENT IF > 0.1%	INDIVIDUAL RADIONUCLIDES AND ACTIVITY (MBq) AND CONTAINER TOTAL; OR CONTAINER TOTAL ACTIVITY AND RADIONUCLIDE PERCENT RADIONUCLIDES	pCi/gm	MBq	mCi	16. WASTE CLASSIFICATION A8-Class A Stable AU-Class A Unstable B-Class B C-Class C
												Total		1.7705E+00	4.7850E-02	
												Source [1.5411E-01 kg]				
Bag 37/007	19 LIFT LINER	0.7646	1133.9910	<1.0000E-03	<3.6740E-06	<3.6740E-06	22-HJ	0.7646	100 100	metal oxides/none	NP	K-40	9.30000E+00	3.8850E-01	1.0500E-02	AU
		27.0000	1.2500	<1.0000E-01	<2.2000E+02	<2.2000E+02		27.0000				Th-(nat) [1.4700E-01 kg]	2.85000E+01	1.1951E+00	3.2300E-02	
												U-(nat) [7.1100E-03 kg]	4.40000E+00	1.8885E-01	5.0500E-03	
												Subtotal		1.7705E+00	4.7850E-02	
												Total		1.7705E+00	4.7850E-02	
												Source [1.5411E-01 kg]				
Bag 41/007	19 LIFT LINER	0.7646	1133.9910	<1.0000E-03	<3.6740E-06	<3.6740E-06	22-HJ	0.7646	100 100	metal oxides/none	NP	K-40	9.30000E+00	3.8850E-01	1.0500E-02	AU
		27.0000	1.2500	<1.0000E-01	<2.2000E+02	<2.2000E+02		27.0000				Th-(nat) [1.4700E-01 kg]	2.85000E+01	1.1951E+00	3.2300E-02	
												U-(nat) [7.1100E-03 kg]	4.40000E+00	1.8885E-01	5.0500E-03	
												Subtotal		1.7705E+00	4.7850E-02	
												Total		1.7705E+00	4.7850E-02	
												Source [1.5411E-01 kg]				
Bag 44/007	19 LIFT LINER	0.7646	1133.9910	<1.0000E-03	<3.6740E-06	<3.6740E-06	22-HJ	0.7646	100 100	metal oxides/none	NP	K-40	9.30000E+00	3.8850E-01	1.0500E-02	AU
		27.0000	1.2500	<1.0000E-01	<2.2000E+02	<2.2000E+02		27.0000				Th-(nat) [1.4700E-01 kg]	2.85000E+01	1.1951E+00	3.2300E-02	
												U-(nat) [7.1100E-03 kg]	4.40000E+00	1.8885E-01	5.0500E-03	
												Subtotal		1.7705E+00	4.7850E-02	
												Total		1.7705E+00	4.7850E-02	
												Source [1.5411E-01 kg]				
Bag 47/007	19 LIFT LINER	0.7646	1133.9910	<1.0000E-03	<3.6740E-06	<3.6740E-06	22-HJ	0.7646	100 100	metal oxides/none	NP	K-40	9.30000E+00	3.8850E-01	1.0500E-02	AU
		27.0000	1.2500	<1.0000E-01	<2.2000E+02	<2.2000E+02		27.0000				Th-(nat) [1.4700E-01 kg]	2.85000E+01	1.1951E+00	3.2300E-02	
												U-(nat) [7.1100E-03 kg]	4.40000E+00	1.8885E-01	5.0500E-03	
												Subtotal		1.7705E+00	4.7850E-02	
												Total		1.7705E+00	4.7850E-02	
												Source [1.5411E-01 kg]				

EXCLUSIVE USE INSTRUCTIONS TO CARRIER

You are advised per these instructions to transport the items defined on the attached shipping documents under EXCLUSIVE USE PROVISIONS

Special Remarks Concerning EXCLUSIVE USE

Do not change configuration of load in vehicle
Do not transfer shipment from originating carrier vehicle
If necessary to change towing vehicle, notify tTA at 865-740-6870
Do not load other packages on originating vehicle
Deliver directly to consignee
Do not change the fifth wheel position (as applicable)
Do not change or remove placards. Radioactive Placards and Dangerous have been provided

Other Instructions and Requirements

Follow Applicable ERG's for Hazardous Materials Class 7 (162)

Markings, Labels and Placards have been inspected and are acceptable

Administrative Contacts

tTA (865) 740-6870

IN THE EVENT OF AN EMERGENCY, CONTACT:

~~**AECOM 847 343-6007**~~, 865-740-6870 TTA

I understand that I have read and understand the above requirements and will comply with these Exclusive Use Instructions

Drivers Name (Printed) Greg Wilson

Drivers Signature _____ Date 1/4/11

STRAIGHT BILL OF LADING SHORT FORM NOT NEGOTIABLE

CARRIER: Landstar Trucking
Carrier No: 9852-01-0003

Shipment No: 9852-01-0003

Date: 01/04/2011

Received, subject to the classifications and tariffs in effect on the date of the issue of this Bill of Lading, the property described below in apparent good order, except as noted (contents and condition of contents of packages unknown), marked, consigned, and destined as indicated below, which said carrier agrees to carry to its usual place of delivery. If on its route, otherwise to deliver to another carrier on the route to said destination. It is mutually agreed as to each carrier of all or any of said routes to destination and as to each party at any time interested in all or any of said property, that every service to be performed hereunder shall be subject to all Bill of Lading terms and conditions in the governing classification on the date of shipment. The shipper hereby certifies that he is familiar with all the Bill of Lading terms and conditions in the governing classification and the said terms and conditions are hereby agreed to by the shipper and accepted for himself and his assigns.

Consignee: Energy Solutions, LLC
Clive Disposal Site (Bulk Waste Facility)
Interstate 80, Exit 49
Clive, UT 84029

Shipper: Ronald McDonald House of Charities of Chicago

Site: 211 E. Grand Chicago, IL 60601

Tractor Number: ~~172407~~ 549300 Trailer Number: ~~727240~~ 749300

No. Pkgs.	HM	Description of Material	Weight (lbs.)	Class	ERG
14	X	Radioactive material, low specific activity (LSA-I), 7, UN2912, Thorium Impacted Soils	35000	7	162
		Radionuclides: K-40, Th-(nat), U-(nat) Total Activity: 2.4786E+01 MBq Physical Form: Solid, Chemical Form: Oxides			
		Label: None, Placarded: "Radioactive"			

Subject to section 7 of conditions of applicable Bill of Lading, if this shipment is to be delivered to the consignee without recourse on the consignor, the consignor shall sign the following statement:

The carrier shall not make delivery of this shipment without payment of freight and all other lawful charges.

N/A
Signature of the Consignor

If freight charges are to be pre-paid, write or stamp here "TO BE PREPAID".

N/A

865-740-6870 TTA

24 HOUR Emergency Contact Number: ~~1-847-343-6001~~

Notice: For additional information contact: Timothy Mock @ 865-740-6870
Exclusive Use Shipment

NOTE: Where the rate is dependent on value, shippers are required to state specifically in writing the agreed on value of the property:
The agreed on or declared value of the property is hereby specifically stated by the shipper to be not exceeding:

N/A
$_____ per_____ (unit)

SS741 Reference
N/A

Marking/Label(s) applied:
"Radioactive"

Placard(s) required:
Class 7

This is to certify that the above named materials are properly described, packaged, marked, and labeled, and are in proper condition for transportation according to the applicable regulations of the U.S. Department of Transportation.

Shipper: Timothy Mock
Contract with: TA/ICE
Per: On behalf of Ronald McDonald House

The additions on the face hereof and the terms and conditions are hereby noted:
Carrier: Landstar Trucking
Per: _____ Date: 1/4/2011
Print: Teea Baker

AECOM Copy

FORM 540 — **EnergySolutions, LLC**

UNIFORM LOW-LEVEL RADIOACTIVE WASTE MANIFEST
SHIPPING PAPER

1. EMERGENCY TELEPHONE NUMBER (Include Area Code): ~~847-343-6007~~ 865-740-6870

ORGANIZATION: ~~AECOM~~ TTA

2. IS THIS AN "EXCLUSIVE USE" SHIPMENT? ☑ YES ☐ NO

3. TOTAL NUMBER OF PACKAGES IDENTIFIED ON THIS MANIFEST ⟶ 14

4. DOES EPA REGULATED WASTE REQUIRING A MANIFEST ACCOMPANY THIS SHIPMENT? ☐ YES ☑ NO
If "Yes," provide Manifest Number ⟶

EPA MANIFEST NUMBER

5. SHIPPER – NAME AND FACILITY
RONALD MCDONALD HOUSE OF CHARITIES OF CHICAGO
211 EAST GRAND
CHICAGO, IL 60601

SHIPPER I.D. NUMBER: 9852-01-0003

☐ COLLECTOR
☐ PROCESSOR
☑ GENERATOR TYPE (Specify) O

Utah Generator Site Access Permit No.: 1012000320

SHIPMENT NUMBER: 9852-01-0003

CONTACT: DOUG PORTER

TELEPHONE NUMBER (Include Area Code): 1-800-423-8907

6. CARRIER – Name and Address
Landstar Trucking
13410 Sutton Park South
Jacksonville, FL 32224

EPA I.D. NUMBER: FLR 000 067 157

SHIPPING DATE: 01/04/2011

CONTACT: Brandon Coburn

TELEPHONE (Include Area Code): 800-872-8828

SIGNATURE – *Authorized carrier acknowledging waste receipt* [signature]

DATE: 1/4/11

7. FORM 540 AND 540A — PAGE 1 OF 2 PAGE(S)
FORM 541 AND 541A — 4 PAGE(S)
FORM 542 AND 542A — None PAGE(S)
ADDITIONAL INFORMATION — None PAGE(S)

8. MANIFEST NUMBER (Use this number on all continuation pages): 9852-01-0003

9. CONSIGNEE - Name and Facility
EnergySolutions, LLC
Clive Disposal Site (Bulk Waste Facility)
Interstate 80, Exit 49
Clive, UT 84029

CONTACT: **Transportation Compliance**

TELEPHONE (Include Area Code): **(435)884-0155**

SIGNATURE – *Authorized consignee acknowledging waste receipt*

DATE

10. CERTIFICATION

This is to certify that the herein-named materials are properly classified, described, packaged, marked, and labeled and are in proper condition for transportation according to the applicable regulations of the Department of Transportation. This also certifies that the materials are classified, packaged, marked, and labeled and are in proper condition for transportation and disposal as described in accordance with the requirements of 10 CFR Parts 20 and 61, or equivalent state regulations.

AUTHORIZED SIGNATURE: [signature] Trodd

TITLE: Shipper RMHC / Ronald McDonald House

DATE: 1/4/11

11. U.S. DEPARTMENT OF TRANSPORTATION DESCRIPTION (including proper shipping name, hazard class, UN ID number, and any additional information)	12. DOT LABEL "RADIOACTIVE"	13. TRANSPORT INDEX	14. PHYSICAL AND CHEMICAL FORM	15. INDIVIDUAL RADIONUCLIDES			16. TOTAL PACKAGE ACTIVITY MBq	mCi	17. LSA/SCO CLASS	18. TOTAL WEIGHT OR VOLUME (Use appropriate units)	19. IDENTIFICATION NUMBER OF PACKAGE
Radioactive material, low specific activity (LSA-I), 7, UN 2912 , Thorium Impacted Soils	NA	NA	solid metal oxides	K-40	Th-(nat)	U-(nat)	1.7705E+00	4.7850E-02	LSA-I	2500 LBS; 27 FT3	Bag 01
Radioactive material, low specific activity (LSA-I), 7, UN 2912 , Thorium Impacted Soils	NA	NA	solid metal oxides	K-40	Th-(nat)	U-(nat)	1.7705E+00	4.7850E-02	LSA-I	2500 LBS; 27 FT3	Bag 02
Radioactive material, low specific activity (LSA-I), 7, UN 2912 , Thorium Impacted Soils	NA	NA	solid metal oxides	K-40	Th-(nat)	U-(nat)	1.7705E+00	4.7850E-02	LSA-I	2500 LBS; 27 FT3	Bag 03
Radioactive material, low specific activity (LSA-I), 7, UN 2912 , Thorium Impacted Soils	NA	NA	solid metal oxides	K-40	Th-(nat)	U-(nat)	1.7705E+00	4.7850E-02	LSA-I	2500 LBS; 27 FT3	Bag 04
Radioactive material, low specific activity (LSA-I), 7, UN 2912 , Thorium Impacted Soils	NA	NA	solid metal oxides	K-40	Th-(nat)	U-(nat)	1.7705E+00	4.7850E-02	LSA-I	2500 LBS; 27 FT3	Bag 07
Radioactive material, low specific activity (LSA-I), 7, UN 2912 , Thorium Impacted Soils	NA	NA	solid metal oxides	K-40	Th-(nat)	U-(nat)	1.7705E+00	4.7850E-02	LSA-I	2500 LBS; 27 FT3	Bag 08

FOR CONSIGNEE USE ONLY

____ Record Waste Description Inadequate
____ Contamination or Leakage Detected
____ Unexpected Exposure Rates Detected
____ Labels, Markings, etc. Inadequate
____ Container Integrity Inadequate
____ Other
____ No Violations Detected on this Shipment

20. TERMS AND CONDITIONS

A. HAZARDOUS MATERIALS: Generator represents & warrants that Waste Material __ is (or) ✓ is not a hazardous waste as defined in 40 CFR 261 Where the material is a hazardous waste, this shipment is also accompanied by a separate and completed hazardous waste manifest, along with the appropriate land-disposal restriction notice and/or certification as required by 40 CFR 268.1.

B. TITLE: Upon acceptance at the disposal site by EnergySolutions, LLC, and all appropriate regulatory authorities, title to the Waste Material which conforms to Generator's representations herein shall thereupon transfer from Generator and be vested in EnergySolutions, LLC

C. WASTE MATERIAL: Generator represents and warrants that all data set forth in this (UNIFORM LOW-LEVEL RADIOACTIVE WASTE MANIFEST) are true and correct in all respects and in accordance with all applicable governmental laws, rules, regulations and EnergySolutions LLC's facility license.

D. INDEMNIFICATION: Generator agrees to indemnify EnergySolutions, LLC, its officers, employees and agents against all losses and liability whatsoever if such losses or liability results from the failure of the Waste Material to conform in all material respects to the data supplied on the (UNIFORM LOW-LEVEL RADIOACTIVE WASTE MANIFEST.) or if this shipment fails to meet the standards prescribed by the Department of Transportation or any governmental agency having jurisdiction over such matters.

FORM 540 (03-06)

FORM 540A

UNIFORM LOW-LEVEL RADIOACTIVE WASTE MANIFEST
SHIPPING PAPER (CONTINUATION)

EnergySolutions, LLC

6. MANIFEST NUMBER (Use this number on all continuation pages) 8852-01-0003

Page 2 of 2

11. U.S. DEPARTMENT OF TRANSPORTATION DESCRIPTION (Including proper shipping name, hazard class, UN ID number, and any additional information)	12. DOT LABEL "RADIOACTIVE"	13. TRANSPORT INDEX	14. PHYSICAL AND CHEMICAL FORM	15. INDIVIDUAL RADIONUCLIDES			16. TOTAL PACKAGE ACTIVITY MBq	mCi	17. LSA/SCO CLASS	18. TOTAL WEIGHT OR VOLUME (Use appropriate units)	19. IDENTIFICATION NUMBER OF PACKAGE
Radioactive material, low specific activity (LSA-I), 7, UN 2912 , Thorium Impacted Soils	NA	NA	solid metal oxides	K-40	Th-(nat)	U-(nat)	1.7706E+00	4.7850E-02	LSA-I	2500 LBS; 27 FT3	Bag 09
Radioactive material, low specific activity (LSA-I), 7, UN 2912 , Thorium Impacted Soils	NA	NA	solid metal oxides	K-40	Th-(nat)	U-(nat)	1.7706E+00	4.7850E-02	LSA-I	2500 LBS; 27 FT3	Bag 12
Radioactive material, low specific activity (LSA-I), 7, UN 2912 , Thorium Impacted Soils	NA	NA	solid metal oxides	K-40	Th-(nat)	U-(nat)	1.7706E+00	4.7850E-02	LSA-I	2500 LBS; 27 FT3	Bag 13
Radioactive material, low specific activity (LSA-I), 7, UN 2912 , Thorium Impacted Soils	NA	NA	solid metal oxides	K-40	Th-(nat)	U-(nat)	1.7706E+00	4.7850E-02	LSA-I	2500 LBS; 27 FT3	Bag 14
Radioactive material, low specific activity (LSA-I), 7, UN 2912 , Thorium Impacted Soils	NA	NA	solid metal oxides	K-40	Th-(nat)	U-(nat)	1.7706E+00	4.7850E-02	LSA-I	2500 LBS; 27 FT3	Bag 15
Radioactive material, low specific activity (LSA-I), 7, UN 2912 , Thorium Impacted Soils	NA	NA	solid metal oxides	K-40	Th-(nat)	U-(nat)	1.7706E+00	4.7850E-02	LSA-I	2500 LBS; 27 FT3	Bag 16
Radioactive material, low specific activity (LSA-I), 7, UN 2912 , Thorium Impacted Soils	NA	NA	solid metal oxides	K-40	Th-(nat)	U-(nat)	1.7706E+00	4.7850E-02	LSA-I	2500 LBS; 27 FT3	Bag 23
Radioactive material, low specific activity (LSA-I), 7, UN 2912 , Thorium Impacted Soils	NA	NA	solid metal oxides	K-40	Th-(nat)	U-(nat)	1.7706E+00	4.7850E-02	LSA-I	2500 LBS; 27 FT3	Bag 24

FORM 540A (03-06)

FORM 541 — EnergySolutions, LLC

UNIFORM LOW-LEVEL RADIOACTIVE WASTE MANIFEST

CONTAINER AND WASTE DESCRIPTION

Additional Nuclear Regulatory Commission (NRC) Requirements for Control, Transfer and Disposal of Radioactive Waste

1. MANIFEST TOTALS

NUMBER OF PACKAGES/ DISPOSAL CONTAINERS	NET WASTE VOLUME		NET WASTE WEIGHT		SPECIAL NUCLEAR MATERIAL (grams) U-233	U-235	Pu	Total
14	m3	10.7044	kg	15876.7340	NP	NP	NP	NP
	ft3	378.0000	ton	17.5000				

ACTIVITY	ALL NUCLIDES	TRITIUM	C-14	Tc-99	I-129	SOURCE (kg)	
MBq	2.4766E+01	NP	NP	NP	NP	(kg)	2.1676E+00
mCi	6.6990E-01	NP	NP	NP	NP	(tons)	2.3783E-03

2. MANIFEST NUMBER 9852-01-0003

3. PAGE 1 OF 4 PAGE(S)

4. SHIPPER NAME RONALD MCDONALD HOUSE OF CHARITIES OF CHICAGO

SHIPMENT ID NUMBER 9852-01-0003

DISPOSAL CONTAINER DESCRIPTION							WASTE DESCRIPTION FOR EACH WASTE TYPE IN CONTAINER										
							PHYSICAL DESCRIPTION			CHEMICAL DESCRIPTION		RADIOLOGICAL DESCRIPTION					
5. CONTAINER IDENTIFICATION NUMBER/ GENERATOR ID NUMBER(S)	6. CONTAINER DESCRIPTION (See Note 1 & Note 1A)	7. VOLUME (m3) / (ft3)	8. WASTE AND CONTAINER WEIGHT (kg) / (ton)	9. SURFACE RADIATION LEVEL (mSv/hr) / (mrem/hr)	10. SURFACE CONTAMINATION (MBq/100 cm2) / (dpm/100cm2) ALPHA	BETA-GAMMA	11. WASTE DESCRIPTOR (See Note 2 & Note 2A)	12. APPROXIMATE WASTE VOLUME(S) IN CONTAINER (m3) / (FT3)	13. SOLIDIFICATION OR STABILIZATION MEDIA (See Note 3)	14. CHEMICAL FORM/ CHELATING AGENT	WEIGHT % CHELATING AGENT IF > 0.1%	INDIVIDUAL RADIONUCLIDES AND ACTIVITY (MBq) AND CONTAINER TOTAL; OR CONTAINER TOTAL ACTIVITY AND RADIONUCLIDE PERCENT — RADIONUCLIDES	pCi/gm	MBq	mCi	15. WASTE CLASSIFICATION A&-Class A Stable AU-Class A Unstable B-Class B C-Class C
Bag 01/007	19 LIFT LINER	0.7646	1133.9810	<1.0000E-03	<3.6740E-06	<3.6740E-06	22-HJ	0.7646	100 100	metal oxides/none	NP	K-40	9.30000E+00	3.8850E-01	1.0500E-02	AU
		27.0000	1.2500	<1.0000E-01	<2.2000E+02	<2.2000E+03		27.0000				Th-(nat) [1.4700E-01 kg]	2.85000E+01	1.1951E+00	3.2300E-02	
												U-(nat) [7.1100E-03 kg]	4.40000E+00	1.8885E-01	5.0500E-03	
												Subtotal		1.7705E+00	4.7850E-02	
												Total Source [1.5411E-01 kg]		1.7705E+00	4.7850E-02	
Bag 02/007	19 LIFT LINER	0.7646	1133.9810	<1.0000E-03	<3.6740E-06	<3.6740E-06	22-HJ	0.7646	100 100	metal oxides/none	NP	K-40	9.30000E+00	3.8850E-01	1.0500E-02	AU
		27.0000	1.2500	<1.0000E-01	<2.2000E+02	<2.2000E+03		27.0000				Th-(nat) [1.4700E-01 kg]	2.85000E+01	1.1951E+00	3.2300E-02	
												U-(nat) [7.1100E-03 kg]	4.40000E+00	1.8885E-01	5.0500E-03	
												Subtotal		1.7705E+00	4.7850E-02	
												Total Source [1.5411E-01 kg]		1.7705E+00	4.7850E-02	
Bag 03/007	19 LIFT LINER	0.7646	1133.9810	<1.0000E-03	<3.6740E-06	<3.6740E-06	22-HJ	0.7646	100 100	metal oxides/none	NP	K-40	9.30000E+00	3.8850E-01	1.0500E-02	AU
		27.0000	1.2500	<1.0000E-01	<2.2000E+02	<2.2000E+03		27.0000				Th-(nat) [1.4700E-01 kg]	2.85000E+01	1.1951E+00	3.2300E-02	
												U-(nat) [7.1100E-03 kg]	4.40000E+00	1.8885E-01	5.0500E-03	
												Subtotal		1.7705E+00	4.7850E-02	
												Total Source [1.5411E-01 kg]		1.7705E+00	4.7850E-02	

Note 1: Container Description Codes. For containers/ waste requiring disposal in approved structural overpacks the numerical code must be followed by "-OP."

1. Wooden Box or Crate
2. Metal Box
3. Plastic Drum or Pail
4. Metal Drum or Pail
5. Metal Tank or Liner
6. Concrete Tank or Liner
7. Polyethlene Tank or Liner
8. Fiberglass Tank or Liner
9. Demineralizer
10. Gas Cylinder
11. Bulk, Unpackaged Waste
12. Unpackaged Components
13. High Integrity Container
19. Other. Describe in Item 6, or additional page

Note 1A: Bulk Packaging Description Codes. (Choose one code as may be applicable.)

A Gondola
B Intermodal
C End-Dump
D Roll-off
E Seavan

NOTE 2: Waste Descriptor Codes. (Choose up to three which predominate by volume.)

20. Charcoal
21. Incinerator Ash
22. Soil
23. Gas
24. Oil
25. Aqueous Liquid
26. Filter Media
27. Mechanical Filter
28. EPA or State Hazardous
29. Demolition Rubble
30. Cation Ion-exchange Media
31. Anion Ion-exchange Media
32. Mixed Bed Ion-exchange Media
33. Contaminated Equipment
34. Organic Liquid (except oil)
35. Glassware or Labware
36. Sealed Source/Device
37. Paint or Plating
38. Evaporator Bottoms/Sludges/ Concentrates
39. Compactible Trash
40. Noncompactible Trash
41. Animal Carcass
42. Biological Material (except animal carcass)
43. Activated Material
59. Other. Describe in Item 11, or additional page

NOTE 2A: Specific Waste Descriptions (Choose all applicable codes.)

G Dewatered
H Solid
I Combustible
J Non-combustible
K Air Filtration Filters
L Asbestos

Note3: Solidification and Stabilization Media Codes. (Choose up to three which predominate by volume.) For media meeting disposal site structural stability requirements, the numerical code must be followed by "-S." and the media vendor and brand name must also be identified

In Item 13, Code 100=NONE REQUIRED.

Solidification
90. Cement
91. Concrete (encapsulation)
92. Bitumen
93. Vinyl Chloride
94. Vinyl Ester Styrene
99. Other. Describe in Item 13, or additional page
100. None Required.

FORM 541 (03-06)

FORM 541A

UNIFORM LOW-LEVEL RADIOACTIVE WASTE MANIFEST

CONTAINER AND WASTE DESCRIPTION (CONTINUATION)

EnergySolutions, LLC

2. MANIFEST NUMBER: 9852-01-0003

3. PAGE 2 OF 4 PAGE(S)

DISPOSAL CONTAINER DESCRIPTION							WASTE DESCRIPTION FOR EACH WASTE TYPE IN CONTAINER									
							PHYSICAL DESCRIPTION			14. CHEMICAL DESCRIPTION		15. RADIOLOGICAL DESCRIPTION				16. WASTE CLASSIFICATION A&-Class A Stable AU-Class A Unstable B-Class B C-Class C
5. CONTAINER IDENTIFICATION NUMBER/ GENERATOR ID NUMBER(S)	6. CONTAINER DESCRIPTION (See Note 1 & Note 1A)	7. VOLUME (m3) (ft3)	8. WASTE AND CONTAINER WEIGHT (kg) (ton)	9. SURFACE RADIATION LEVEL (mSv/hr) (mrem/hr)	10. SURFACE CONTAMINATION (MBq/100 cm2) (dpm/100cm2) ALPHA	BETA-GAMMA	11. WASTE DESCRIPTOR (See Note 2 & Note 2A)	12. APPROXIMATE WASTE VOLUME(S) IN CONTAINER (m3) (FT3)	13. SOLIDIFICATION OR STABILIZATION MEDIA (See Note 3)	CHEMICAL FORM CHELATING AGENT	WEIGHT % CHELATING AGENT IF > 0.1%	INDIVIDUAL RADIONUCLIDES AND ACTIVITY (MBq) AND CONTAINER TOTAL; OR CONTAINER TOTAL ACTIVITY AND RADIONUCLIDE PERCENT RADIONUCLIDES	pCi/gm	MBq	mCi	
Bag 04/007	19 LIFT LINER	0.7646	1133.9610	<1.0000E-03	<3.6740E-06	<3.6740E-06	22-HJ	0.7646	100 100	metal oxides/none	NP	K-40	9.30000E+00	3.8850E-01	1.0500E-02	AU
												Th-(nat) [1.4700E-01 kg]	2.85000E+01	1.1951E+00	3.2300E-02	
		27.0000	1.2500	<1.0000E-01	<2.2000E+02	<2.2000E+03		27.0000				U-(nat) [7.1100E-03 kg]	4.40000E+00	1.8885E-01	5.0500E-03	
												Subtotal		1.7705E+00	4.7850E-02	
												Total Source [1.5411E-01 kg]		1.7705E+00	4.7850E-02	
Bag 07/007	19 LIFT LINER	0.7646	1133.9610	<1.0000E-03	<3.6740E-06	<3.6740E-06	22-HJ	0.7646	100 100	metal oxides/none	NP	K-40	9.30000E+00	3.8850E-01	1.0500E-02	AU
												Th-(nat) [1.4700E-01 kg]	2.85000E+01	1.1951E+00	3.2300E-02	
		27.0000	1.2500	<1.0000E-01	<2.2000E+02	<2.2000E+03		27.0000				U-(nat) [7.1100E-03 kg]	4.40000E+00	1.8885E-01	5.0500E-03	
												Subtotal		1.7705E+00	4.7850E-02	
												Total Source [1.5411E-01 kg]		1.7705E+00	4.7850E-02	
Bag 08/007	19 LIFT LINER	0.7646	1133.9610	<1.0000E-03	<3.6740E-06	<3.6740E-06	22-HJ	0.7646	100 100	metal oxides/none	NP	K-40	9.30000E+00	3.8850E-01	1.0500E-02	AU
												Th-(nat) [1.4700E-01 kg]	2.85000E+01	1.1951E+00	3.2300E-02	
		27.0000	1.2500	<1.0000E-01	<2.2000E+02	<2.2000E+03		27.0000				U-(nat) [7.1100E-03 kg]	4.40000E+00	1.8885E-01	5.0500E-03	
												Subtotal		1.7705E+00	4.7850E-02	
												Total Source [1.5411E-01 kg]		1.7705E+00	4.7850E-02	
Bag 09/007	19 LIFT LINER	0.7646	1133.9610	1.2000E-03	<3.6740E-06	<3.6740E-06	22-HJ	0.7646	100 100	metal oxides/none	NP	K-40	9.30000E+00	3.8850E-01	1.0500E-02	AU
												Th-(nat) [1.4700E-01 kg]	2.85000E+01	1.1951E+00	3.2300E-02	
		27.0000	1.2500	1.2000E-01	<2.2000E+02	<2.2000E+03		27.0000				U-(nat) [7.1100E-03 kg]	4.40000E+00	1.8885E-01	5.0500E-03	
												Subtotal		1.7705E+00	4.7850E-02	
												Total Source [1.5411E-01 kg]		1.7705E+00	4.7850E-02	
Bag 12/007	19 LIFT LINER	0.7646	1133.9610	<1.0000E-03	<3.6740E-06	<3.6740E-06	22-HJ	0.7646	100 100	metal oxides/none	NP	K-40	9.30000E+00	3.8850E-01	1.0500E-02	AU
												Th-(nat) [1.4700E-01 kg]	2.85000E+01	1.1951E+00	3.2300E-02	
		27.0000	1.2500	<1.0000E-01	<2.2000E+02	<2.2000E+03		27.0000				U-(nat) [7.1100E-03 kg]	4.40000E+00	1.8885E-01	5.0500E-03	
												Subtotal		1.7705E+00	4.7850E-02	

FORM 541A

UNIFORM LOW-LEVEL RADIOACTIVE WASTE MANIFEST

CONTAINER AND WASTE DESCRIPTION (CONTINUATION)

EnergySolutions, LLC

2. MANIFEST NUMBER 9852-01-0003

3. PAGE 3 OF 4 PAGE(S)

DISPOSAL CONTAINER DESCRIPTION							WASTE DESCRIPTION FOR EACH WASTE TYPE IN CONTAINER									
							PHYSICAL DESCRIPTION			CHEMICAL DESCRIPTION		RADIOLOGICAL DESCRIPTION				
5. CONTAINER IDENTIFICATION NUMBER/ GENERATOR ID NUMBER(S)	6. CONTAINER DESCRIPTION (See Note 1 & Note 1A)	7. VOLUME (m3) (ft3)	8. WASTE AND CONTAINER WEIGHT (kg) (ton)	9. SURFACE RADIATION LEVEL (mSv/hr) (mrem/hr)	10. SURFACE CONTAMINATION (MBq/100 cm2) (dpm/100cm2) ALPHA	BETA-GAMMA	11. WASTE DESCRIPTOR (See Note 2 & Note 2A)	12. APPROXIMATE WASTE VOLUME(S) IN CONTAINER (m3) (FT3)	13. SOLIDIFICATION OR STABILIZATION MEDIA (See Note 3)	CHEMICAL FORM/ CHELATING AGENT	WEIGHT % CHELATING AGENT IF > 0.1%	INDIVIDUAL RADIONUCLIDES AND ACTIVITY (MBq) AND CONTAINER TOTAL; OR CONTAINER TOTAL ACTIVITY AND RADIONUCLIDE PERCENT RADIONUCLIDES	pCi/gm	MBq	mCi	16. WASTE CLASSIFICATION A/B-Class A Stable A/U-Class A Unstable B-Class B C-Class C
												Total		1.7705E+00	4.7850E-02	
												Source [1.5411E-01 kg]				
Bag 13/007	19 LIFT LINER	0.7646	1133.9810	<1.0000E-03	<3.6740E-06	<3.6740E-06	22-HJ	0.7646	100 100	metal oxides/none	NP	K-40	9.30000E+00	3.8850E-01	1.0500E-02	AU
		27.0000	1.2500	<1.0000E-01	<2.2000E+02	<2.2000E+03		27.0000				Th-(nat) [1.4700E-01 kg]	2.85000E+01	1.1951E+00	3.2300E-02	
												U-(nat) [7.1100E-03 kg]	4.40000E+00	1.8685E-01	5.0500E-03	
												Subtotal		1.7705E+00	4.7850E-02	
												Total		1.7705E+00	4.7850E-02	
												Source [1.5411E-01 kg]				
Bag 14/007	19 LIFT LINER	0.7646	1133.9810	<1.0000E-03	<3.6740E-06	<3.6740E-06	22-HJ	0.7646	100 100	metal oxides/none	NP	K-40	9.30000E+00	3.8850E-01	1.0500E-02	AU
		27.0000	1.2500	<1.0000E-01	<2.2000E+02	<2.2000E+03		27.0000				Th-(nat) [1.4700E-01 kg]	2.85000E+01	1.1951E+00	3.2300E-02	
												U-(nat) [7.1100E-03 kg]	4.40000E+00	1.8685E-01	5.0500E-03	
												Subtotal		1.7705E+00	4.7850E-02	
												Total		1.7705E+00	4.7850E-02	
												Source [1.5411E-01 kg]				
Bag 15/007	19 LIFT LINER	0.7646	1133.9810	<1.0000E-03	<3.6740E-06	<3.6740E-06	22-HJ	0.7646	100 100	metal oxides/none	NP	K-40	9.30000E+00	3.8850E-01	1.0500E-02	AU
		27.0000	1.2500	<1.0000E-01	<2.2000E+02	<2.2000E+03		27.0000				Th-(nat) [1.4700E-01 kg]	2.85000E+01	1.1951E+00	3.2300E-02	
												U-(nat) [7.1100E-03 kg]	4.40000E+00	1.8685E-01	5.0500E-03	
												Subtotal		1.7705E+00	4.7850E-02	
												Total		1.7705E+00	4.7850E-02	
												Source [1.5411E-01 kg]				
Bag 16/007	19 LIFT LINER	0.7646	1133.9810	1.8000E-03	<3.6740E-06	<3.6740E-06	22-HJ	0.7646	100 100	metal oxides/none	NP	K-40	9.30000E+00	3.8850E-01	1.0500E-02	AU
		27.0000	1.2500	1.8000E-01	<2.2000E+02	<2.2000E+03		27.0000				Th-(nat) [1.4700E-01 kg]	2.85000E+01	1.1951E+00	3.2300E-02	
												U-(nat) [7.1100E-03 kg]	4.40000E+00	1.8685E-01	5.0500E-03	
												Subtotal		1.7705E+00	4.7850E-02	
												Total		1.7705E+00	4.7850E-02	
												Source [1.5411E-01 kg]				

FORM 541A (05-06)

EXCLUSIVE USE INSTRUCTIONS TO CARRIER

You are advised per these instructions to transport the items defined on the attached shipping documents under EXCLUSIVE USE PROVISIONS

Special Remarks Concerning EXCLUSIVE USE

Do not change configuration of load in vehicle
Do not transfer shipment from originating carrier vehicle
If necessary to change towing vehicle, notify tTA at 865-740-6870
Do not load other packages on originating vehicle
Deliver directly to consignee
Do not change the fifth wheel position (as applicable)
Do not change or remove placards. Radioactive Placards and Dangerous have been provided

Other Instructions and Requirements

Follow Applicable ERG's for Hazardous Materials Class 7 (162)

Markings, Labels and Placards have been inspected and are acceptable

Administrative Contacts

tTA (865) 740-6870

IN THE EVENT OF AN EMERGENCY, CONTACT:

~~**AECOM 847 343-6007**~~ TTA 865-740-6870

I understand that I have read and understand the above requirements and will comply with these Exclusive Use Instructions.

Drivers Name (Printed) TERRY BURKEY

Drivers Signature [signature] Date 1/4/11

STRAIGHT BILL OF LADING SHORT FORM NOT NEGOTIABLE

CARRIER: Landstar Trucking
Carrier No: 9852-01-0004

Shipment No: 9852-01-0004

Date: 01/04/2011

Received, subject to the classifications and tariffs in effect on the date of the issue of this Bill of Lading, the property described below in apparent good order, except as noted (contents and condition of contents of packages unknown), marked, consigned, and destined as indicated below, which said carrier agrees to carry to its usual place of delivery. If on its route, otherwise to deliver to another carrier on the route to said destination. It is mutually agreed as to each carrier of all or any of said routes to destination and as to each party at any time interested in all or any of said property, that every service to be performed hereunder shall be subject to all Bill of Lading terms and conditions in the governing classification on the date of shipment. The shipper hereby certifies that he is familiar with all the Bill of Lading terms and conditions in the governing classification and the said terms and conditions are hereby agreed to by the shipper and accepted for himself and his assigns.

Consignee: Energy Solutions, LLC
Clive Disposal Site (Bulk Waste Facility)
Interstate 80, Exit 49
Clive, UT 84029

Shipper: Ronald McDonald House of Charities of Chicago

Site: 211 E. Grand Chicago, IL 60601

Tractor Number: ~~12240~~ 553702
Trailer Number: ~~T97240~~ 753702

No. Pkgs.	HM	Description of Material	Weight (lbs.)	Class	ERG
15	X	Radioactive material, low specific activity (LSA-I), 7, UN2912, Thorium Impacted Soils	37500	7	162
		Radionuclides: K-40, Th-(nat), U-(nat) Total Activity: 2.6557E+01 MBq Physical Form: Solid, Chemical Form: Oxides			
		Label: None, Placarded: "Radioactive"			

Subject to section 7 of conditions of applicable Bill of Lading, if this shipment is to be delivered to the consignee without recourse on the consignor, the consignor shall sign the following statement:

The carrier shall not make delivery of this shipment without payment of freight and all other lawful charges.

N/A
Signature of the Consignor

If freight charges are to be pre-paid, write or stamp here "TO BE PREPAID".
N/A

NOTE: Where the rate is dependent on value, shippers are required to state specifically in writing the agreed on value of the property:
The agreed on or declared value of the property is hereby specifically stated by the shipper to be not exceeding:
N/A
$____ per ____ (unit)

SS741 Reference
N/A

Marking/Label(s) applied:
"Radioactive"

Placard(s) required:
Class 7

24 HOUR Emergency Contact Number: ~~1-847-343-6001~~ 865-740-6870 FTA

Notice: For additional information contact: Timothy Mock @ 865-740-6870
Exclusive Use Shipment

This is to certify that the above named materials are properly described, packaged, marked, and labeled, and are in proper condition for transportation according to the applicable regulations of the U.S. Department of Transportation.

Shipper: Timothy Mock
Contract with: ITAGE
Per: On behalf of Ronald McDonald House

The additions on the face hereof and the terms and conditions are hereby noted:
Carrier: Landstar Trucking
Per: [signature] Date: 1/4/2011
Print: Ron Argaia

AECOM Copy

FORM 540 — EnergySolutions, LLC

UNIFORM LOW-LEVEL RADIOACTIVE WASTE MANIFEST
SHIPPING PAPER

1. EMERGENCY TELEPHONE NUMBER (Include Area Code): ~~801-649-2999~~ 865-740-6870
ORGANIZATION: ~~AECOM~~ TTA

2. IS THIS AN "EXCLUSIVE USE" SHIPMENT? ☑ YES ☐ NO

3. TOTAL NUMBER OF PACKAGES IDENTIFIED ON THIS MANIFEST: 18

4. DOES EPA REGULATED WASTE REQUIRING A MANIFEST ACCOMPANY THIS SHIPMENT? ☐ YES ☑ NO
If "Yes," provide Manifest Number ==>

EPA MANIFEST NUMBER:

5. SHIPPER – NAME AND FACILITY
RONALD MCDONALD HOUSE OF CHARITIES OF CHICAGO
211 EAST GRAND
CHICAGO, IL 60601

Utah Generator Site Access Permit No.: 1012006820
SHIPMENT NUMBER: 9862-01-0004

CONTACT: DOUG PORTER
TELEPHONE NUMBER (Include Area Code): 1-630-623-6907

6. CARRIER – Name and Address
Landstar Trucking
13410 Sutton Park South
Jacksonville, FL 32224

CONTACT: Brandon Coburn
TELEPHONE (Include Area Code): 800-872-9626

SIGNATURE – Authorized carrier acknowledging waste receipt
DATE: 1/4/11

SHIPPER I.D. NUMBER: 9862-01-0004
☐ COLLECTOR
☐ PROCESSOR
☑ GENERATOR TYPE (Specify): O

EPA I.D. NUMBER: FLR 000 007 187
SHIPPING DATE: 01/04/2011

7. FORM 540 AND 540A — PAGE 1 OF 2 PAGE(S)
FORM 541 AND 541A — 4 PAGE(S)
FORM 542 AND 542A — None PAGE(S)
ADDITIONAL INFORMATION — None PAGE(S)

8. CONSIGNEE - Name and Facility
EnergySolutions, LLC
Clive Disposal Site (Bulk Waste Facility)
Interstate 80, Exit 49
Clive, UT 84029

CONTACT: Transportation Compliance
TELEPHONE (Include Area Code): (435)884-0155

SIGNATURE – Authorized consignee acknowledging waste receipt
DATE:

9. MANIFEST NUMBER (Use this number on all continuation pages): 9862-01-0004

10. CERTIFICATION
This is to certify that the herein-named materials are properly classified, described, packaged, marked, and labeled and are in proper condition for transportation according to the applicable regulations of the Department of Transportation. This also certifies that the materials are classified, packaged, marked, and labeled and are in proper condition for transportation and disposal as described in accordance with the requirements of 10 CFR Parts 20 and 61, or equivalent state regulations.

AUTHORIZED SIGNATURE: [signature] TITLE: Shipper TTA/ICF/Ronald McDonald House DATE: 1/4/11

11. U.S. DEPARTMENT OF TRANSPORTATION DESCRIPTION (Including proper shipping name, hazard class, UN ID number, and any additional information)	12. DOT LABEL "RADIOACTIVE"	13. TRANSPORT INDEX	14. PHYSICAL AND CHEMICAL FORM	15. INDIVIDUAL RADIONUCLIDES			16. TOTAL PACKAGE ACTIVITY MBq	mCi	17. LSA/SCO CLASS	18. TOTAL WEIGHT OR VOLUME (Use appropriate units)	19. IDENTIFICATION NUMBER OF PACKAGE
Radioactive material, low specific activity (LSA-I), 7, UN 2912 , Thorium Impacted Soils	NA	NA	solid metal oxides	K-40	Th-(nat)	U-(nat)	1.7705E+00	4.7850E-02	LSA-I	2500 LBS; 27 FT3	Bag 06
Radioactive material, low specific activity (LSA-I), 7, UN 2912 , Thorium Impacted Soils	NA	NA	solid metal oxides	K-40	Th-(nat)	U-(nat)	1.7705E+00	4.7850E-02	LSA-I	2500 LBS; 27 FT3	Bag 17
Radioactive material, low specific activity (LSA-I), 7, UN 2912 , Thorium Impacted Soils	NA	NA	solid metal oxides	K-40	Th-(nat)	U-(nat)	1.7705E+00	4.7850E-02	LSA-I	2500 LBS; 27 FT3	Bag 18
Radioactive material, low specific activity (LSA-I), 7, UN 2912 , Thorium Impacted Soils	NA	NA	solid metal oxides	K-40	Th-(nat)	U-(nat)	1.7705E+00	4.7850E-02	LSA-I	2500 LBS; 27 FT3	Bag 19
Radioactive material, low specific activity (LSA-I), 7, UN 2912 , Thorium Impacted Soils	NA	NA	solid metal oxides	K-40	Th-(nat)	U-(nat)	1.7705E+00	4.7850E-02	LSA-I	2500 LBS; 27 FT3	Bag 20
Radioactive material, low specific activity (LSA-I), 7, UN 2912 , Thorium Impacted Soils	NA	NA	solid metal oxides	K-40	Th-(nat)	U-(nat)	1.7705E+00	4.7850E-02	LSA-I	2500 LBS; 27 FT3	Bag 21

FOR CONSIGNEE USE ONLY

____ Record Waste Description Inadequate
____ Contamination or Leakage Detected
____ Unexpected Exposure Rates Detected
____ Labels, Markings, etc. Inadequate
____ Container Integrity Inadequate
____ Other
____ No Violations Detected on this Shipment

20. TERMS AND CONDITIONS

A. HAZARDOUS MATERIALS: Generator represents & warrants that Waste Material __ is (or) ✓ is not a hazardous waste as defined in 40 CFR 261. Where the material is a hazardous waste, this shipment is also accompanied by a separate and completed hazardous waste manifest, along with the appropriate land-disposal restriction notice and/or certification as required by 40 CFR 268.1.

B. TITLE: Upon acceptance at the disposal site by EnergySolutions, LLC, and all appropriate regulatory authorities, title to the Waste Material which conforms to Generator's representations herein shall thereupon transfer from Generator and be vested in EnergySolutions, LLC

C. WASTE MATERIAL: Generator represents and warrants that all data set forth in this (UNIFORM LOW-LEVEL RADIOACTIVE WASTE MANIFEST) are true and correct in all respects and in accordance with all applicable governmental laws, rules, regulations and EnergySolutions LLC's facility license.

D. INDEMNIFICATION: Generator agrees to indemnify EnergySolutions, LLC, its officers, employees and agents against all losses and liability whatsoever if such losses or liability results from the failure of the Waste Material to conform in all material respects to the data supplied on the (UNIFORM LOW-LEVEL RADIOACTIVE WASTE MANIFEST,) or if this shipment fails to meet the standards prescribed by the Department of Transportation or any governmental agency having jurisdiction over such matters.

FORM 540A

EnergySolutions, LLC

UNIFORM LOW-LEVEL RADIOACTIVE WASTE MANIFEST
SHIPPING PAPER (CONTINUATION)

8. MANIFEST NUMBER (Use this number on all continuation pages) 0652-01-0004

Page 2 of 2

11. U.S. DEPARTMENT OF TRANSPORTATION DESCRIPTION (Including proper shipping name, hazard class, UN ID number, and any additional information)	12. DOT LABEL "RADIOACTIVE"	13. TRANSPORT INDEX	14. PHYSICAL AND CHEMICAL FORM	15. INDIVIDUAL RADIONUCLIDES			16. TOTAL PACKAGE ACTIVITY MBq	mCi	17. LSA/SCO CLASS	18. TOTAL WEIGHT OR VOLUME (Use appropriate units)	19. IDENTIFICATION NUMBER OF PACKAGE
Radioactive material, low specific activity (LSA-I), 7, UN 2912 , Thorium Impacted Soils	NA	NA	solid metal oxides	K-40	Th-(nat)	U-(nat)	1.7705E+00	4.7850E-02	LSA-I	2500 LBS; 27 FT3	Bag 22
Radioactive material, low specific activity (LSA-I), 7, UN 2912 , Thorium Impacted Soils	NA	NA	solid metal oxides	K-40	Th-(nat)	U-(nat)	1.7705E+00	4.7850E-02	LSA-I	2500 LBS; 27 FT3	Bag 35
Radioactive material, low specific activity (LSA-I), 7, UN 2912 , Thorium Impacted Soils	NA	NA	solid metal oxides	K-40	Th-(nat)	U-(nat)	1.7705E+00	4.7850E-02	LSA-I	2500 LBS; 27 FT3	Bag 40
Radioactive material, low specific activity (LSA-I), 7, UN 2912 , Thorium Impacted Soils	NA	NA	solid metal oxides	K-40	Th-(nat)	U-(nat)	1.7705E+00	4.7850E-02	LSA-I	2500 LBS; 27 FT3	Bag 43
Radioactive material, low specific activity (LSA-I), 7, UN 2912 , Thorium Impacted Soils	NA	NA	solid metal oxides	K-40	Th-(nat)	U-(nat)	1.7705E+00	4.7850E-02	LSA-I	2500 LBS; 27 FT3	Bag 46
Radioactive material, low specific activity (LSA-I), 7, UN 2912 , Thorium Impacted Soils	NA	NA	solid metal oxides	K-40	Th-(nat)	U-(nat)	1.7705E+00	4.7850E-02	LSA-I	2500 LBS; 27 FT3	Bag 52
Radioactive material, low specific activity (LSA-I), 7, UN 2912 , Thorium Impacted Soils	NA	NA	solid metal oxides	K-40	Th-(nat)	U-(nat)	1.7705E+00	4.7850E-02	LSA-I	2500 LBS; 27 FT3	Bag 53
Radioactive material, low specific activity (LSA-I), 7, UN 2912 , Thorium Impacted Soils	NA	NA	solid metal oxides	K-40	Th-(nat)	U-(nat)	1.7705E+00	4.7850E-02	LSA-I	2500 LBS; 27 FT3	Bag 54
Radioactive material, low specific activity (LSA-I), 7, UN 2912 , Thorium Impacted Soils	NA	NA	solid metal oxides	K-40	Th-(nat)	U-(nat)	1.7705E+00	4.7850E-02	LSA-I	2500 LBS; 27 FT3	Bag 55

FORM 540A (03-06)

FORM 541 — EnergySolutions, LLC

UNIFORM LOW-LEVEL RADIOACTIVE WASTE MANIFEST

CONTAINER AND WASTE DESCRIPTION

Additional Nuclear Regulatory Commission (NRC) Requirements for Control, Transfer and Disposal of Radioactive Waste

1. MANIFEST TOTALS

NUMBER OF PACKAGES/ DISPOSAL CONTAINERS	NET WASTE VOLUME	NET WASTE WEIGHT	SPECIAL NUCLEAR MATERIAL (grams) U-233	U-235	Pu	Total
16	m3 11.4490	kg 17009.7160	NP	NP	NP	NP
	ft3 405.0000	ton 18.7600				

ACTIVITY	ALL NUCLIDES	TRITIUM	C-14	Tc-99	I-129	SOURCE (kg)	
MBq	2.6857E+01	NP	NP	NP	NP	(kg)	2.3117E+00
mCi	7.1775E-01	NP	NP	NP	NP	(tons)	2.5482E-03

2. MANIFEST NUMBER: 9852-01-0004

3. PAGE 1 OF 4 PAGE(S)

4. SHIPPER NAME: RONALD MCDONALD HOUSE OF CHARITIES OF CHICAGO

SHIPMENT ID NUMBER: 9852-01-0004

DISPOSAL CONTAINER DESCRIPTION | **WASTE DESCRIPTION FOR EACH WASTE TYPE IN CONTAINER**

5. CONTAINER IDENTIFICATION NUMBER/ GENERATOR ID NUMBER(S)	6. CONTAINER DESCRIPTION (See Note 1 & Note 1A)	7. VOLUME (m3) / (ft3)	8. WASTE AND CONTAINER WEIGHT (kg) / (ton)	9. SURFACE RADIATION LEVEL (mSv/hr) (mrem/hr)	10. SURFACE CONTAMINATION (MBq/100 cm2) / (dpm/100cm2) ALPHA	BETA-GAMMA	11. PHYSICAL DESCRIPTION: WASTE DESCRIPTOR (See Note 2 & Note 2A)	12. APPROXIMATE WASTE VOLUME(8) IN CONTAINER (m3) / (FT3)	13. SOLIDIFICATION OR STABILIZATION MEDIA (See Note 3)	14. CHEMICAL DESCRIPTION: CHEMICAL FORM/ CHELATING AGENT	WEIGHT % CHELATING AGENT IF > 0.1%	15. RADIOLOGICAL DESCRIPTION: INDIVIDUAL RADIONUCLIDES AND ACTIVITY (MBq) AND CONTAINER TOTAL; OR CONTAINER TOTAL ACTIVITY AND RADIONUCLIDE PERCENT — RADIONUCLIDES	pCi/gm	MBq	mCi	16. WASTE CLASSIFICATION A§-Class A stable A§-Class A Unstable B-Class B C-Class C
Bag 04/007	19 LIFT LINER	0.7646	1133.9810	<1.0000E-03	<3.6740E-06	<3.6740E-06	22-HJ	0.7646	100 100	metal oxides/none	NP	K-40	9.30000E+00	3.8850E-01	1.0500E-02	AU
												Th-(nat) [1.4700E-01 kg]	2.85000E+01	1.1951E+00	3.2300E-02	
		27.0000	1.2500	<1.0000E-01	<2.2000E+02	<2.2000E+03		27.0000				U-(nat) [7.1100E-03 kg]	4.40000E+00	1.8885E-01	5.0500E-03	
												Subtotal		1.7705E+00	4.7850E-02	
												Total		1.7705E+00	4.7850E-02	
												Source [1.5411E-01 kg]				
Bag 17/007	19 LIFT LINER	0.7646	1133.9810	<1.0000E-03	<3.6740E-06	<3.6740E-06	22-HJ	0.7646	100 100	metal oxides/none	NP	K-40	9.30000E+00	3.8850E-01	1.0500E-02	AU
												Th-(nat) [1.4700E-01 kg]	2.85000E+01	1.1951E+00	3.2300E-02	
		27.0000	1.2500	<1.0000E-01	<2.2000E+02	<2.2000E+03		27.0000				U-(nat) [7.1100E-03 kg]	4.40000E+00	1.8885E-01	5.0500E-03	
												Subtotal		1.7705E+00	4.7850E-02	
												Total		1.7705E+00	4.7850E-02	
												Source [1.5411E-01 kg]				
Bag 16/007	19 LIFT LINER	0.7646	1133.9810	<1.0000E-03	<3.6740E-06	<3.6740E-06	22-HJ	0.7646	100 100	metal oxides/none	NP	K-40	9.30000E+00	3.8850E-01	1.0500E-02	AU
												Th-(nat) [1.4700E-01 kg]	2.85000E+01	1.1951E+00	3.2300E-02	
		27.0000	1.2500	<1.0000E-01	<2.2000E+02	<2.2000E+03		27.0000				U-(nat) [7.1100E-03 kg]	4.40000E+00	1.8885E-01	5.0500E-03	
												Subtotal		1.7705E+00	4.7850E-02	
												Total		1.7705E+00	4.7850E-02	
												Source [1.5411E-01 kg]				

Note 1: Container Description Codes. For containers/ waste requiring disposal in approved structural overpacks the numerical code must be followed by "-OP."

1. Wooden Box or Crate
2. Metal Box
3. Plastic Drum or Pail
4. Metal Drum or Pail
5. Metal Tank or Liner
6. Concrete Tank or Liner
7. Polyethlene Tank or Liner
8. Fiberglass Tank or Liner
9. Demineralizer
10. Gas Cylinder
11. Bulk, Unpackaged Waste
12. Unpackaged Components
13. High Integrity Container
19. Other. Describe in Item 6, or additional page

Note 1A: Bulk Packaging Description Codes. (Choose one code as may be applicable.)

A Gondola
B Intermodal
C End-Dump
D Roll-off
E Seavan

NOTE 2: Waste Descriptor Codes. (Choose up to three which predominate by volume.)

20. Charcoal
21. Incinerator Ash
22. Soil
23. Gas
24. Oil
25. Aqueous Liquid
26. Filter Media
27. Mechanical Filter
28. EPA or State Hazardous
29. Demolition Rubble
30. Cation Ion-exchange Media
31. Anion Ion-exchange Media
32. Mixed Bed Ion-exchange Media
33. Contaminated Equipment
34. Organic Liquid (except oil)
35. Glassware or Labware
36. Sealed Source/Device
37. Paint or Plating
38. Evaporator Bottoms/Sludges/ Concentrates
39. Compactible Trash
40. Noncompactible Trash
41. Animal Carcass
42. Biological Material (except animal carcass)
43. Activated Material
99. Other. Describe in Item 11, or additional page

NOTE 2A: Specific Waste Descriptions (Choose all applicable codes.)

G Dewatered
H Solid
I Combustible
J Non-combustible
K Air Filtration Filters
L Asbestos

Note3: Solidification and Stabilization Media Codes. (Choose up to three which predominate by volume.) For media meeting disposal site structural stability requirements, the numerical code must be followed by "-S," and the media vendor and brand name must also be identified.

In Item 13, Code 100=NONE REQUIRED.

Solidification
90. Cement
91. Concrete (encapsulation)
92. Bitumen
93. Vinyl Chloride
94. Vinyl Ester Styrene
99. Other. Describe in Item 13, or additional page
100. None Required.

FORM 541 (03-06)

FORM 541A

UNIFORM LOW-LEVEL RADIOACTIVE WASTE MANIFEST

CONTAINER AND WASTE DESCRIPTION (CONTINUATION)

EnergySolutions, LLC

2. MANIFEST NUMBER 9852-01-0004

3. PAGE 2 OF 4 PAGE(S)

DISPOSAL CONTAINER DESCRIPTION							WASTE DESCRIPTION FOR EACH WASTE TYPE IN CONTAINER							16. WASTE CLASSIFICATION A/B-Class A /Stable A/J-Class A Unstable B-Class B C-Class C
							PHYSICAL DESCRIPTION			14. CHEMICAL DESCRIPTION		15. RADIOLOGICAL DESCRIPTION		
5. CONTAINER IDENTIFICATION NUMBER/ GENERATOR ID NUMBER(S)	6. CONTAINER DESCRIPTION (See Note 1 & Note 1A)	7. VOLUME (m3) (ft3)	8. WASTE AND CONTAINER WEIGHT (kg) (ton)	9. SURFACE RADIATION LEVEL (mSv/hr) (mrem/hr)	10. SURFACE CONTAMINATION (MBq/100 cm2) (dpm/100cm2) ALPHA	BETA-GAMMA	11. WASTE DESCRIPTOR (See Note 2 & Note 2A)	12. APPROXIMATE WASTE VOLUME(S) IN CONTAINER (m3) (FT3)	13. SOLIDIFICATION OR STABILIZATION MEDIA (See Note 3)	CHEMICAL FORM/ CHELATING AGENT	WEIGHT % CHELATING AGENT IF > 0.1%	INDIVIDUAL RADIONUCLIDES AND ACTIVITY (MBq) AND CONTAINER TOTAL; OR CONTAINER TOTAL ACTIVITY AND RADIONUCLIDE PERCENT RADIONUCLIDES	pCi/gm	MBq	mCi	
Bag 19/007	19 LIFT LINER	0.7646	1133.9910	<1.0000E-03	<3.6740E-06	<3.6740E-06	22-HJ	0.7646	100 100	metal oxides/none	NP	K-40	9.30000E+00	3.8850E-01	1.0500E-02	AU
												Th-(nat) [1.4700E-01 kg]	2.85000E+01	1.1951E+00	3.2300E-02	
		27.0000	1.2500	<1.0000E-01	<2.2000E+02	<2.2000E+03		27.0000				U-(nat) [7.1100E-03 kg]	4.40000E+00	1.8885E-01	5.0500E-03	
												Subtotal		1.7705E+00	4.7850E-02	
												Total Source [1.5411E-01 kg]		1.7705E+00	4.7850E-02	
Bag 20/007	19 LIFT LINER	0.7646	1133.9910	<1.0000E-03	<3.6740E-06	<3.6740E-06	22-HJ	0.7646	100 100	metal oxides/none	NP	K-40	9.30000E+00	3.8850E-01	1.0500E-02	AU
												Th-(nat) [1.4700E-01 kg]	2.85000E+01	1.1951E+00	3.2300E-02	
		27.0000	1.2500	<1.0000E-01	<2.2000E+02	<2.2000E+03		27.0000				U-(nat) [7.1100E-03 kg]	4.40000E+00	1.8885E-01	5.0500E-03	
												Subtotal		1.7705E+00	4.7850E-02	
												Total Source [1.5411E-01 kg]		1.7705E+00	4.7850E-02	
Bag 21/007	19 LIFT LINER	0.7646	1133.9910	<1.0000E-03	<3.6740E-06	<3.6740E-06	22-HJ	0.7646	100 100	metal oxides/none	NP	K-40	9.30000E+00	3.8850E-01	1.0500E-02	AU
												Th-(nat) [1.4700E-01 kg]	2.85000E+01	1.1951E+00	3.2300E-02	
		27.0000	1.2500	<1.0000E-01	<2.2000E+02	<2.2000E+03		27.0000				U-(nat) [7.1100E-03 kg]	4.40000E+00	1.8885E-01	5.0500E-03	
												Subtotal		1.7705E+00	4.7850E-02	
												Total Source [1.5411E-01 kg]		1.7705E+00	4.7850E-02	
Bag 22/007	19 LIFT LINER	0.7646	1133.9910	<1.0000E-03	<3.6740E-06	<3.6740E-06	22-HJ	0.7646	100 100	metal oxides/none	NP	K-40	9.30000E+00	3.8850E-01	1.0500E-02	AU
												Th-(nat) [1.4700E-01 kg]	2.85000E+01	1.1951E+00	3.2300E-02	
		27.0000	1.2500	<1.0000E-01	<2.2000E+02	<2.2000E+03		27.0000				U-(nat) [7.1100E-03 kg]	4.40000E+00	1.8885E-01	5.0500E-03	
												Subtotal		1.7705E+00	4.7850E-02	
												Total Source [1.5411E-01 kg]		1.7705E+00	4.7850E-02	
Bag 38/007	19 LIFT LINER	0.7646	1133.9910	<1.0000E-03	<3.6740E-06	<3.6740E-06	22-HJ	0.7646	100 100	metal oxides/none	NP	K-40	9.30000E+00	3.8850E-01	1.0500E-02	AU
												Th-(nat) [1.4700E-01 kg]	2.85000E+01	1.1951E+00	3.2300E-02	
		27.0000	1.2500	<1.0000E-01	<2.2000E+02	<2.2000E+03		27.0000				U-(nat) [7.1100E-03 kg]	4.40000E+00	1.8885E-01	5.0500E-03	
												Subtotal		1.7705E+00	4.7850E-02	

EXCLUSIVE USE INSTRUCTIONS TO CARRIER

You are advised per these instructions to transport the items defined on the attached shipping documents under EXCLUSIVE USE PROVISIONS

Special Remarks Concerning EXCLUSIVE USE

Do not change configuration of load in vehicle
Do not transfer shipment from originating carrier vehicle
If necessary to change towing vehicle, notify tTA at 865-740-6870
Do not load other packages on originating vehicle
Deliver directly to consignee
Do not change the fifth wheel position (as applicable)
Do not change or remove placards. Radioactive Placards and Dangerous have been provided

Other Instructions and Requirements

Follow Applicable ERG's for Hazardous Materials Class 7 (162)

Markings, Labels and Placards have been inspected and are acceptable

Administrative Contacts

tTA (865) 740-6870

IN THE EVENT OF AN EMERGENCY, CONTACT:

~~**AECOM 847 343-6007**~~ TTA 865-740-6870

I understand that I have read and understand the above requirements and will comply with these Exclusive Use Instructions

Drivers Name (Printed) Ron Klein

Drivers Signature _____ Date 1/4/11

Radiation Survey Form - Truck #1

211 E. Grand Ave - AECOM

Date: **1/3/2011**
Performed By **Glenn Huber**

Survey Meter ID:	**Bicron**	Model:	**MicroRem**	Serial:	**C258C**
Wipe Counter ID:	**Ludlum**	Model:	**2200**	Serial:	**102770**
	Ludlum		**43-10**	Serial:	**PR113195**
Background CPM:	**0.9**	2-min MDA:	**15.2 dpm**	eff:	**23.90%**
Count Time:	**2 minutes**	Wipe Area:	**300 cm^2**		

	Removable Contamination					
Bag#	Gross Counts Wipe #1	Gross Counts Wipe #2	Max. Gross CPM	DPM/ 300 cm^2	DPM/ 100 cm^2	Maximum Surface Exposure Rate (uR/hr)
25	0	0	0	0.00	0	12
26	2	1	1	0.42	0.14	8
28	0	1	0.5	0.00	0.00	11
30	1	0	0.5	0.00	0.00	20
33	2	0	1	0.42	0.14	16
36	1	3	1.5	2.51	0.84	8
38	2	1	1	0.42	0.00	15
39	1	0	0.5	0.00	0.00	12
42	0	0	0	0.00	0.00	10
45	1	1	0.5	0.00	0.00	8
48	1	2	1	0.42	0.14	10
51	3	0	1.5	2.51	0.84	8
56	1	2	1	0.42	0.14	9
57	3	2	1.5	2.51	0.84	7

All Removable Comtamination Wipes Below MDA of 15.2 dpm

Maximum Exposure Rate at One Meter from Loaded Truck (TI): 7 uR/hr

Radiation Survey Form - Truck #2

211 E. Grand Ave - AECOM

Date: **1/3/2011**
Performed By **Glenn Huber**

Survey Meter ID:	**Bicron**	Model:	**MicroRem**	Serial:	**C258C**
Wipe Counter ID:	**Ludlum**	Model:	**2200**	Serial:	**102770**
	Ludlum		**43-10**	Serial:	**PR113195**
Background CPM:	**0.9**	2-min MDA:	**15.2 dpm**	eff:	**23.90%**
Count Time:	**2 minutes**	Wipe Area:	**300 cm^2**		

	Removable Contamination					
Bag#	Gross Counts Wipe #1	Gross Counts Wipe #2	Max. Gross CPM	DPM/ 300 cm^2	DPM/ 100 cm^2	Maximum Surface Exposure Rate (uR/hr)
5	3	1	1.5	2.51	0.84	8
10	4	1	2	4.60	1.53	200
11	8	3	4	12.97	4.32	50
27	2	0	1	0.42	0.14	13
29	2	3	1.5	2.51	0.84	9
31	0	2	1	0.42	0.14	20
32	3	0	1.5	2.51	0.84	70
34	1	4	2	4.60	1.53	10
37	0	2	1	0.42	0.14	35
41	1	0	0.5	0.00	0.00	13
44	2	1	1	0.42	0.14	10
47	3	0	1.5	2.51	0.84	8
49	1	2	1	0.42	0.14	11
50	0	1	0.5	0.00	0.00	15

All Removable Comtamination Wipes Below MDA of 15.2 dpm

Maximum Exposure Rate at One Meter from Loaded Truck (TI): 30 uR/hr

Radiation Survey Form - Truck #3

211 E. Grand Ave - AECOM

Date: **1/4/2011**
Performed By **Glenn Huber**

Survey Meter ID:	**Bicron**	Model:	**MicroRem**	Serial:	**C258C**
Wipe Counter ID:	**Ludlum**	Model:	**2200**	Serial:	**102770**
	Ludlum		**43-10**	Serial:	**PR113195**
Background CPM:	**0.9**	2-min MDA:	**15.2 dpm**	eff:	**23.90%**
Count Time:	**2 minutes**	Wipe Area:	**300 cm^2**		

	Removable Contamination					
Bag#	Gross Counts Wipe #1	Gross Counts Wipe #2	Max. Gross CPM	DPM/ 300 cm^2	DPM/ 100 cm^2	Maximum Surface Exposure Rate (uR/hr)
1	2	3	1.5	2.51	0.84	8
2	2	2	1	0.42	0.14	200
3	0	2	1	0.42	0.14	50
4	1	0	0.5	0.00	0.00	13
7	3	1	1.5	2.51	0.84	9
8	0	2	1	0.42	0.14	20
9	0	1	0.5	0.00	0.00	70
12	4	1	2	4.60	1.53	10
13	4	2	2	4.60	1.53	35
14	1	3	1.5	2.51	0.84	13
15	5	2	2.5	6.69	2.23	10
16	2	0	1	0.42	0.14	8
23	1	4	2	4.60	1.53	11
24	1	1	0.5	0.00	0.00	15

All Removable Comtamination Wipes Below MDA of 15.2 dpm

Maximum Exposure Rate at One Meter from Loaded Truck (TI): 18 uR/hr

Radiation Survey Form - Truck #4

211 E. Grand Ave - AECOM

Date: **1/4/2011**
Performed By **Glenn Huber**

Survey Meter ID:	**Bicron**	Model:	**MicroRem**	Serial:	**C258C**
Wipe Counter ID:	**Ludlum**	Model:	**2200**	Serial:	**102770**
	Ludlum		**43-10**	Serial:	**PR113195**
Background CPM:	**0.9**	2-min MDA:	**15.2 dpm**	eff:	**23.90%**
Count Time:	**2 minutes**	Wipe Area:	**300 cm^2**		

	Removable Contamination					
Bag#	Gross Counts Wipe #1	Gross Counts Wipe #2	Max. Gross CPM	DPM/ 300 cm^2	DPM/ 100 cm^2	Maximum Surface Exposure Rate (uR/hr)
6	3	0	1.5	2.51	0.84	10
17	4	3	2	4.60	1.53	40
18	1	4	2	4.60	1.53	20
19	0	2	1	0.42	0.14	30
20	4	2	2	4.60	1.53	14
21	2	3	1.5	2.51	0.84	18
22	6	2	3	8.79	2.93	9
35	2	0	1	0.42	0.14	9
40	1	0	0.5	0.00	0.00	10
43	0	2	1	0.42	0.14	12
46	0	3	1.5	2.51	0.84	9
52	3	0	1.5	2.51	0.84	18
53	3	1	1.5	2.51	0.84	10
54	4	2	2	4.60	1.53	11
55	2	2	1	0.42	0.14	8

All Removable Comtamination Wipes Below MDA of 15.2 dpm

Maximum Exposure Rate at One Meter from Loaded Truck (TI): 10 uR/hr

Appendix G

Equipment Release Survey Results

RADIATION SURVEY FORM

SURVEY REFERENCE #: 001

DATE OF SURVEY: 12/17/10

NAME OF SURVEYOR: Glenn Huber

SURVEY METER IDENTIFICATION: Mfg: Ludlum

Background Reading: 60 cpm Model: 14C

Serial: 114750

INSTRUMENT ID: Mfg: Ludlum

Background Reading: 0.9 cpm Model: 2200 (scaler) / 43-10 (alpha)

Efficiency: 23.9% Serial: 102770/PR113195

MDA: 15.2 dpm

Description (attached sketch if needed) (Area, equipment, vehicle, materials, etc.)	Item #	Gross Cpm	Gross cpm	dpm per 100 sq. cm
Small Backhoe				
Left Tread			4	13
Right Tread			2	5
Bucket Outside			5	17
Bucket Inside			2	5
Survey = < 100 cpm				

RADIATION SURVEY FORM

SURVEY REFERENCE #: 002

DATE OF SURVEY: 12/22/10

NAME OF SURVEYOR: Glenn Huber

SURVEY METER IDENTIFICATION: **Mfg: Ludlum**

Background Reading: 60 cpm **Model: 14C**

Serial: 114750

INSTRUMENT ID: **Mfg: Ludlum**

Background Reading: 0.9 cpm **Model: 2200 (scaler) / 43-10 (alpha)**

Efficiency: 23.9% **Serial: 102770/PR113195**

MDA: 15.2 dpm

Description (attached sketch if needed) (Area, equipment, vehicle, materials, etc.)	Item #	Gross Cpm	Gross cpm	dpm per 100 sq. cm
Large Backhoe				
Left Tread			3	9
Right Tread			2	5
Bucket Outside			4	13
Bucket Inside			3	9
Survey = < 100 cpm				

Appendix H

Personal Air Monitoring Results

Personal Air Monitoring Summary Sheet (PAM's -Daily Analysis)

Report No. 1 December 17, 2010 - December 22, 2010

AECOM 211 E. Grand Ave. - Chicago, IL

						day after analysis							four day analysis						
Date Collected	Init	Sample ID	Flow Rate (lpm)	Total Time Sampled	Total Sample Volume (ml)	Analysis Date	Gross Counts (30 min)	Gross CPM	Bkg CPM	Net CPM	eff	Sample Concentration (uCi/ml)	Analysis Date	Gross Counts (30 min)	Gross CPM	Bkg CPM	Net CPM	eff	Sample Concentration (uCi/ml)
12/17/10	GH	21101	2.5	370	9.25E+05	12/20/20	17	0.57	0.8	0.00	0.239	0.00E+00	No 4 day analysis required						
12/20/10	GH	21102	2.5	410	1.03E+06	12/21/10	32	1.07	0.83	0.24	0.239	4.35E-13	12/27/10	24	0.83	0.9	0.00	0.239	0.00E+00
12/21/10	GH	21103	2.5	370	9.25E+05	12/22/20	21	0.70	0.73	0.00	0.239	0.00E+00	No 4 day analysis required						
12/22/10	GH	21104	2.5	300	7.50E+05	12/23/10	23	0.77	0.8	0.00	0.239	0.00E+00	No 4 day analysis required						

*****Note: Samples with counts greater than background on day after analysis are analyzed again after 4 days to allow for radon / thoron progeny decay**

Occupational Dose Limit for Occupational Radiation Exposure = 5 rem Total Effective Dose Equivalent
2000 DAC-Hours = 5 rem
DAC (Derived Air Concentration) for Th-232 = 5E-13uCi/ml
Administrative Site Limit for Occupational Exposure = 30% Th-232 DAC = 1.5E-13 uCi/ml

Appendix I

Instrument Calibrations

STAN A. HUBER CONSULTANTS, INC.

12/16/10

200 NORTH CEDAR ROAD, NEW LENOX, IL 60451-1751

PHONE (815)485-6161

Certificate of Calibration for Well Counter

FACILITY:	CITY:	STATE:
SAHCI	New Lenox	IL

INSTRUMENT IDENTIFICATION

MANUFACTURER: Ludlum MODEL #: 43-10 SERIAL #: PR113195

SOURCE IDENTIFICATION

MANUFACTURER: The Source MODEL # 94TH220 SERIAL # 2430

ISOTOPE: Th-230 ACTIVITY: 20100 dpm DATE: 26-Aug-94

CHI-SQUARE DETERMINATION: **Certification Date:** 16-Dec-10

	COUNTS
1	4871
2	4821
3	4857
4	4747
5	4763
6	4760
7	4812
8	4857
9	4757
10	4839

$\chi^2 = \frac{(n-1)s^2}{\bar{X}}$

(n-1) = 9

s^2 = 2285

$\bar{X}$ = 4808

χ^2 = 4.3

The Chi-Square value 4.3 is between the values of 3.3 and 17.0 and is, therefore, acceptable.

EFFICIENCY DETERMINATION

Background	Total cpm	QC Check	
		20%	5770
2 cpm	4808 cpm		
		-20%	3847

NET CPM=TOTAL CPM-BKG CPM %EFF=NET CPM/DPM *100

4806 NET CPM 0.239 EFF

The Efficiency of the Detector is 0.239 or 23.9 %

LOWER LIMIT OF DETECTION (LLD)

$$LLD = \frac{2.71}{T_s} + 3.29\sqrt{(\frac{C_b}{T_b})(1+\frac{T_b}{T_s})} = \frac{2.71}{2} + 3.29\sqrt{(\frac{0.9}{30})(1+\frac{30}{2})}$$

C_b = Bkg CPM T_s = Sample Count Time

T_b = Bkg Count Time

LLD= 3.63 cpm or 15.2 dpm

CALIBRATED BY: Glenn Huber NEXT CALIBRATION DATE: Dec-11

Ludlum Model 2200 / 43-10 Calibration

Model 2200 Serial Number: 102770
Model 43-10 Serial Number: PR113195

Source Used: The Source
Th-230
20100 dpm
8/26/1994
#94TH220

Date: 12/16/2010

Voltage Plateau

Background Plateau

Volts	CPM
500	0
550	0
600	0
650	0
700	1
750	0
800	1
850	1
900	2
950	2
1000	4

Source Plateau

Volts	CPM
500	0
550	304
600	2530
650	3464
700	4199
750	4386
800	4630
850	4756
900	4725
950	4661
1000	4716

Operating Voltage Set at: **850 volts**

Scaler Counts

Output	Reading - 1 minute count
40 cpm	40 cpm
400 cpm	400 cpm
4000 cpm	3999 cpm
40000 cpm	39997 cpm

Stan A. Huber Consultants, Inc.
Health Physics and Radiation Safety Services

200 North Cedar Road – New Lenox, Illinois 60451-1751 – (800) 383-0468 or (815) 485-6161 – FAX (815) 485-4433 – Email sahci@sahci.com – Home Page www.sahci.com

Certificate of Calibration

Facility: SAHCI
City/State: NEW LENOX IL
Calibration Date: May 10, 2010

Manufacturer: LUDLUM **Model No.:** 14C **Serial No.:** 154125

Instrument Identification: ☒ G-M ☐ ION CHAMBER ☐ POCKET DOSIMETER ☐ _____
Probe Type: ☒ PANCAKE ☐ END WINDOW ☐ SIDE WINDOW ☐ _____
Window: ☐ Open ☐ Closed ☒ Fixed Th-230 Eff = 12.9%

Calibration Sources

↳ Th-230 model 94TH220 = 20,100 dpm on 8/26/94 using S# 2430

Cs-137 #1 (Γ =0.33) 0.0993 mCi
Cs-137 #2 (Γ =0.33) 69.67 mCi
Co-57 (Γ =0.09) 0.075 mCi
All Sources as of Date: 5/10/2010

Co-57 Efficiency Relative to Cs-137: 1 mR/hr = 8.2 cm

Observed mR/hr (Co-57) cpm / Actual mR/hr (Co-57) cpm x 100 = N/D %

Scale Ranges	Distances Source #1	Distances Source #2	Actual cpm	Observed cpm	Within +/- 10%	Correction Factor
0.1	W/ Electronic Pulser		100	100	Yes	-
			500	500		-
1			1000	1K		-
			5000	5K		-
10			10000	10K		-
			50000	50K		-
100			100000	100K		-
			500000	500K	↓	-
Do Not Use	X 1000 Scale!					

Angle of the flux field to detector (internal or external) is 90 degrees (perpendicular) and the distance is from center of source to center of detector, unless stated otherwise. Sodium iodide front end detectors are calibrated parallel to the flux field. All Sources used for calibrations are traceable to the National Institute Of Standards and Technology.

Source Set D 0.1 – 100 Scales calibrated electronically with Pulser X #142038 or _____ #159107

Battery Check: 6K ~~(mR/hr)~~ or cpm Operational Check: 6Kcpm ~~(mR/hr)~~ using Side Source

Comments: 1 mR/hr = 18.1 cm = 4000 cpm

Next Calibration Date: May 10, 2011 Calibrated by: Joel M. Ahrweiler

Joel M. Ahrweiler

Stan A. Huber Consultants, Inc.
200 North Cedar Road -- New Lenox, Illinois 60451
Phone (815) 485-6161 -- Fax (815) 485-4433

The information is for the identification of sources used in instrument calibrations performed by Stan A. Huber Consultants, Inc.

The following source set (A) is used by _____

Manufacturer	Radionuclide	Model No.	Serial No.	Activity	Assay Date
NEN	Cs-137	NES-356	319-188-16	0.215 mCi	03-10-78
Tech Ops	Cs-137	773	S823	155.4 mCi	03-11-92
North American Scientific	Co-57	MED 3550	102862	6.208 mCi	09-01-07
Isotope Products	Ba-133	RV-133-250U	970-72-15	253.5 µCi	06-01-03

The following source set (B) is used by _____

Manufacturer	Radionuclide	Model No.	Serial No.	Activity	Assay Date
Tech Ops	Cs-137	726	132	96 mCi	03-10-77
NEN	Cs-137	NES-356	3560279B-14	0.222 mCi	02-22-79
North American Scientific	Co-57	MED 3550	102864	6.199 mCi	09-01-07
Isotope Products	Ba-133	RV-133-250U	970-72-17	259.9 µCi	06-01-03

The following source set (C) is used by _____

Manufacturer	Radionuclide	Model No.	Serial No.	Activity	Assay Date
NEN	Cs-137	NES-356	3560180A-15	0.199 mCi	01-25-80
Tech Ops	Cs-137	77302	S-575	147.4 mCi	09-17-86
North American Scientific	Co-57	MED 3550	102870	6.199 mCi	09-01-07
Isotope Products	Ba-133	RV-133-250U	970-72-19	254.8 µCi	06-01-03

The following source set (D) is used by _____

Manufacturer	Radionuclide	Model No.	Serial No.	Activity	Assay Date
NEN	Cs-137	NES-356	3560379A-17	0.203 mCi	03-28-79
Tech Ops	Cs-137	773	S389	93.3 mCi	08-25-97
North American Scientific	Co-57	MED 3550	62134	10.96 mCi	01-01-05

Pulser

Manufacturer	Model No.	Serial No.
Ludlum	500	142038
Ludlum	500-2	159107

Updated 1/15/10 cloc

Ludlum Model 2221/44-10 Calibration

Model 2221 serial number: 134542

Probe 44-10 serial number: 168143

Date: 11/8/10

Scaler Linear Check

Pulser model/serial number: Ludlum 5001 142038

Calibration Due Date: 11/23/10

Threshold set to 100 mv. GH (tech. init.)

Pulser setting in cts.	Multiplyer	As Found Scaler reading in cts.	After Adjustment Scaler reading in cts.
400	X1	399	—
4K	X10	3996	—
40K	X100	39957	—
400K	X1000	399582	—

Voltage Plateau

Source isotope/serial number: Cs-137 0.89uCi on 12/20/95 I #4830.

BKGD PLATEAU			SOURCE PLATEAU		
volts	source counts	Bkg counts	volts	counts	
700	25109	3451	1100	32962	4924
750	28233	3550	1150	35260	5491
800	30845	4024	1200	37497	6036
850	30948	4394			
900	31203	4446			
* 950	31385	4607			
1000	31919	4537			
1050	32094	4437			

operating voltage selected: 950 V

Unshielded

Ludlum Model 2221/44-10 Calibration

Model 2221 serial number: 134542

Probe 44-10 serial number: 168143

Date: 11/8/10 ☒ window verified at about 3830

Instrument BKGD

1 minute BKDG counts

5693	6005
5823	5736
6049	5723

Average: 5838

Source Block Data

Source block ID: _____

1 minute Source Block counts

24380	24471
24291	24367
24260	24129

Average: 24316 cpm Net Average: 18478 cpm

Activity Calculation

Net Average source count rate of: 18478 cpm divided by 10 = 1847.8

Times ~~7.2~~ 7.1 = 13119.4 (A)

Square root of (A) = 114.5 times 2 = 229.1 (B)

(A) plus the average BKGD = 18957.4 CPM/7.2 pCi

The cutoff value is: 18,728 (CPM/7.2 pCi minus (B))

Calibration performed by: _____ DATE: _____

Calibration approved by: _____ DATE: _____

w/ 6" lead shield

Ludlum Model 2221/44-10 Calibration

Model 2221 serial number: 134542

Probe 44-10 serial number: 168143

Date: 11/8/10 ☒ window verified at about 3830

Instrument BKGD

1 minute BKDG counts

1498	1495
1403	1537
1525	1494

Average: 1492

Source Block Data

Source block ID: _____

1 minute Source Block counts

8342	8441
8488	8206
8261	8319

Average: 8343 cpm Net Average: 6851 cpm

Activity Calculation

Net Average source count rate of: 6851 cpm divided by 10 = 685.1

Times ~~7.2~~ 7.1 = 4864.2 (A)

Square root of (A) = 69.74 times 2 = 139.5 (B)

(A) plus the average BKGD = 6356 CPM/7.2 pCi

The cutoff value is: 6217 (CPM/~~7.2~~ 7.1 pCi minus (B))

Calibration performed by: _____ DATE: _____

Calibration approved by: _____ DATE: _____

Designer and Manufacturer of Scientific and Industrial Instruments

CERTIFICATE OF CALIBRATION

LUDLUM MEASUREMENTS, INC.
POST OFFICE BOX 810 PH. 325-235-5494
501 OAK STREET FAX NO. 325-235-4672
SWEETWATER, TEXAS 79556, U.S.A.

CUSTOMER STAN HUBER CONSULTANTS ORDER NO. 20148498/346930

Mfg. Ludlum Measurements, Inc. Model MICRO REM Serial No. C258C

Mfg. _____ Model _____ Serial No. _____

Cal. Date 17-Feb-10 Cal Due Date 17-Feb-11 Cal. Interval 1 Year Meterface 0-200urem

Check mark ☑ applies to applicable instr. and/or detector IAW mfg. spec. T. 70 °F RH 20 % Alt 704.8 mm Hg

☐ New Instrument Instrument Received ☑ Within Toler. +-10% ☐ 10-20% ☐ Out of Tol. ☐ Requiring Repair ☐ Other-See comments

☑ Mechanical ck. ☑ Meter Zeroed ☐ Background Subtract ☐ Input Sens. Linearity
☐ F/S Resp. ck ☐ Reset ck. ☐ Window Operation ☐ Geotropism
☐ Audio ck. ☐ Alarm Setting ck. ☑ Batt. ck. (Min. Volt) _____VDC
☐ Calibrated in accordance with LMI SOP 14.8 rev 12/05/89. ☑ Calibrated in accordance with LMI SOP 14.9 rev 02/07/97.

Instrument Volt Set _____ V Input Sens. _____ mV Det. Oper. _____ V at _____ mV Threshold Dial Ratio _____ = _____ mV

☐ HV Readout (2 points) Ref./Inst. _____ / _____ V Ref./Inst. _____ / _____ V

COMMENTS:

Gamma Calibration: GM detectors positioned perpendicular to source except for M 44-9 in which the front of probe faces source.

RANGE/MULTIPLIER	REFERENCE CAL. POINT	INSTRUMENT REC'D "AS FOUND READING"	INSTRUMENT METER READING*
x1000	150 mR/hr	150	150
x1000	50 mR/hr	45	45
x100	15 mR/hr	145	150
x100	5 mR/hr	45	45
x10	1500 µR/hr	150	150
x10	500 µR/hr	45	45
x1	150 µR/hr	135	150
x1	100 µR/hr	90	100
x0.1	15 µR/hr	150	150
x0.1			

*Uncertainty within ± 10% C.F. within ± 20% _____ Range(s) Calibrated Electronically

	REFERENCE CAL. POINT	INSTRUMENT RECEIVED	INSTRUMENT METER READING*
Digital Readout			

	REFERENCE CAL. POINT	INSTRUMENT RECEIVED	INSTRUMENT METER READING*
Log Scale			

Ludlum Measurements, Inc. certifies that the above instrument has been calibrated by standards traceable to the National Institute of Standards and Technology, or to the calibration facilities of other International Standards Organization members, or have been derived from accepted values of natural physical constants or have been derived by the ratio type of calibration techniques. The calibration system conforms to the requirements of ANSI/NCSL Z540-1-1994 and ANSI N323-1978 State of Texas Calibration License No. LO-1963

Reference Instruments and/or Sources: ☐ 73410 ☑ 1131 ☑ 781 ☐ 059 ☐ 280 ☐ 60646 ☐ 70897
Cs-137 Gamma S/N ☐ 1162 ☐ G112 ☐ M565 ☐ 5105 ☐ T1008 ☐ T879 ☐ E552 ☐ E551 ☐ 720 ☐ 734 ☐ 1616 ☐ Neutron Am-241 Be S/N T-304

☐ Alpha S/N _____ ☐ Beta S/N _____ ☑ Other 20 uci #356/282A-35

☐ m 500 S/N _____ ☐ Oscilloscope S/N _____ ☐ Multimeter S/N _____

Calibrated By: Wendell Williams Date 17 Feb 10

Reviewed By: Rhonda Haines Date 17 Feb 10

This certificate shall not be reproduced except in full, without the written approval of Ludlum Measurements, Inc.
FORM C22A 02/15/2010

AC Inst. Only ☐ Passed Dielectric (Hi-Pot) and Continuity Test ☐ Failed: _____

AECOM

Ludlum Model 2221/44-10 Calibration

Model 2221 serial number: 176944

Probe 44-10 serial number: PR 098196

Date: 11/8/10

Scaler Linear Check

Pulser model/serial number: Ludlum 5001 142038

Calibration Due Date: 11/23/10

Threshold set to 100 mv. GH (tech. Init.)

Pulser setting in cts.	Multiplyer	As Found Scaler reading in cts.	After Adjustment Scaler reading in cts.
400	X1	399	-
4K	X10	3993	-
40K	X100	39995	-
400K	X1000	399164	-

Voltage Plateau

Source isotope/serial number: Cs-137 0.89uC on 12/20/95 I #4830.

BKGD PLATEAU			SOURCE PLATEAU	
volts	source counts / Bkg counts		volts	counts
700	17558	1244	1100	31659 4656
750	22616	1911	1150	31875 4485
800	26068	2925	1200	32179 4855
850	28560	3746		
900	30023	4255		
950	30987	4441		
* 1000	31346	4686		
1050	31917	4592		

operating voltage selected: 1000 V

unshielded AECOM

Ludlum Model 2221/44-10 Calibration

Model 2221 serial number: 176944

Probe 44-10 serial number: PR 098196

Date: ☒ window verified at about 3830

Instrument BKGD

1 minute BKDG counts

5648	5658
5672	5693
5712	5646

Average: 5672

Source Block Data

Source block ID: 2012-SY-17A 2012-SY-37A 2012-SY-27A 2012-SY-47A

1 minute Source Block counts

24478	24339
24338	24246
23879	24089

Average: 24228 cpm Net Average: 18556 cpm

Activity Calculation

Net Average source count rate of: 18556 cpm divided by 10 = 1855.6

Times ~~7.2~~ 7.1 = 13174.8 (A)

Square root of (A) = 114.8 times 2 = 229.6 (B)

(A) plus the average BKGD = 18846.8 CPM/~~7.2~~ 7.1 pCi

The cutoff value is: 18617 (CPM/~~7.2~~ 7.1 pCi minus (B))

Calibration performed by: [signature] DATE: 11/8/10

Calibration approved by: _____ DATE: _____

w/6" lead shield AETOM

Ludlum Model 2221/44-10 Calibration

Model 2221 serial number: 176944

Probe 44-10 serial number: PR098196

Date: 11/8/10 ☒ window verified at about 3830

Instrument BKGD

1 minute BKDG counts

1450	1427
1388	1406
1525	1369

Average: 1428

Source Block Data

Source block ID: 2012-54-1TA 2012-54-3TA 2012-54-2TA 2012-54-4TA

1 minute Source Block counts

9158	9167
9380	8809
8983	8920

Average: 9070 cpm Net Average: 7642 cpm

Activity Calculation

Net Average source count rate of: 7642 cpm divided by 10 = 764.2

Times ~~7.2~~ 7.1 = 5425.8 (A)

Square root of (A) = 73.66 times 2 = 147.3 (B)

(A) plus the average BKGD = 6853.8 CPM/~~7.2~~ 7.1 pCi

The cutoff value is: 6707 (CPM/~~7.2~~ 7.1 pCi minus (B))

Calibration performed by: [signature] DATE: 11/8/10

Calibration approved by: _____ DATE: _____

AECOM

44-62

Ludlum Model 2221/~~44-10~~ Calibration

Model 2221 serial number: 176944

Probe ~~44-10~~ 44-62 serial number: PR294074

Date: 11/8/10

Scaler Linear Check

Pulser model/serial number: Ludlum 500 / 142038

Calibration Due Date: 11/23/10

Threshold set to 100 mv. GH (tech. init.)

Pulser setting in cts.	Multiplyer	As Found Scaler reading in cts.	After Adjustment Scaler reading in cts.
400	X1	399	-
4k	X10	3993	-
40k	X100	39995	-
400k	X1000	399164	-

Voltage Plateau

Source Isotope/serial number: Cs-137 0.89μC on 12/20/95 / #4830

BKGD PLATEAU			SOURCE PLATEAU		
volts	source counts	Bkg counts	volts	source counts	Bkg counts
400	1935	97	800	13519	1096
450	3244	267	850	43281	3530
500	3232	317	900	120208	11857
550	3301	318	950	192602	38345
* 600	3439	348	1000	229958	64348
650	3354	315			
700	3511	369			
750	4679	465			

operating voltage selected: 600 V

Date: November 8, 2010
Performed By: Glenn Huber

Ludlum Model 2221 S/N 176944
Ludlum Model 44-62 S/N PR294074

IMPORTANT NOTE: HV must be set to 600V prior to using. Currently set at 1000V for Model 44-10 2"x2" NaI detector

Thorium Downhole Data

CD-1	1.7 pCi/g
CD-8	12.9 pCi/g
CD-7	23.4 pCi/g

DRUM	Avg CPM
CD-1	1355
CD-8	6262
CD-7	10890

AECOM

Ludlum Model 2221/44-10 Calibration

Model 2221 serial number: 172039

Probe 44-10 serial number: PR174496

Date: 11/25/11

Scaler Linear Check

Pulser model/serial number: Ludlum 500 / 142038

Calibration Due Date: 11/28/11

Threshold set to 100 mv. GH (tech. init.)

Pulser setting in cts.	Multiplyer	As Found Scaler reading in cts.	After Adjustment Scaler reading in cts.
400	X1	400	–
4k	X10	4000	–
40k	X100	39954	–
400k	X1000	399531	–

Voltage Plateau

Source isotope/serial number: CS-137 0.85uC on 12/20/95 / #4830

BKGD PLATEAU			SOURCE PLATEAU		
volts	counts (Source / Bkg count)		volts	counts (Source / Bkg count)	
700	~~6446~~ 29965	2116	1100	39203	4481
750	33819	3125	1150	39916	4520
800	36222	3958	1200	43621	4846
850	37674	4036			
900	38362	4192			
950	38383	4322			
1000	38904	4324			
1050	38855	4501			

operating voltage selected: 950v

unshielded

Ludlum Model 2221/44-10 Calibration

Model 2221 serial number: 172039

Probe 44-10 serial number: PR174496

Date: 11/25/11 ☒ window verified at about 3830

Instrument BKGD

1 minute BKDG counts

5022	5207
5257	5028
5042	5107

Average: 5111

Source Block Data

Source block ID: 2012-SY-1TA, 2012-SY-2TA, 2012-SY-3TA, 2012-SY-4TA

1 minute Source Block counts

24977	24694
24535	24465
24466	24963

Average: 24683 cpm Net Average: 19572 cpm

Activity Calculation

Net Average source count rate of: 19572 cpm divided by 10 = 1957.2

Times ~~7.2~~ 7.1 = 13896.12 (A)

Square root of (A) = 117.88 times 2 = 235.76 (B)

(A) plus the average BKGD = 19007.12 CPM/~~7.2~~ 7.1 pCi

The cutoff value is: 18,771 (CPM/~~7.2~~ 7.1 pCi minus (B)) unshielded

Calibration performed by: [signature] DATE: 11/25/11

Calibration approved by: _____ DATE: _____

w/ 6" shield

Ludlum Model 2221/44-10 Calibration

Model 2221 serial number: 172039

Probe 44-10 serial number: PR174496

Date: 11/25/11 ☒ window verified at about 3830

Instrument BKGD

1 minute BKDG counts

1339	1372
1321	1310
1353	1362

Average: 1343

Source Block Data

Source block ID: 2012-SY-17A, 2012-SY-27A, 2012-SY-37A, 2012-SY-47A

1 minute Source Block counts

9594	9700
9720	9663
9839	9675

Average: 9699 cpm Net Average: 8356 cpm

Activity Calculation

Net Average source count rate of: 8356 cpm divided by 10 = 835.6

Times ~~7.2~~ 7.1 = 5932.76 (A)

Square root of (A) = 77.02 times 2 = 154.05 (B)

(A) plus the average BKGD = 7275.76 CPM ~~7.2~~ 7.1 pCi

The cutoff value is: 7122 (CPM ~~7.2~~ 7.1 pCi minus (B)) w/ 6" shield

Calibration performed by: [signature] DATE: 11/25/11

Calibration approved by: _____ DATE: _____

Ludlum Model 2221/ 44-62 Calibration - Down Hole

Model 2221 Serial Number: 172039
Model 44-62 Serial Number: PR294074

Source Used: The Source
Cs-137
0.89 uCi
12/20/1995
#4830

Date: 1/25/2011
By: Glenn Huber

Voltage Plateau

Background Plateau

Volts	Counts
400	11
450	32
500	230
550	332
600	344
650	307
700	347
750	332
800	380
850	790
900	2778

Source Plateau

Volts	Counts
400	54
450	1364
500	2645
550	3032
600	3045
650	3090
700	3216
750	3160
800	3339
850	5572
900	26392

Operating Voltage Set at: **600 volts**

Downhole Calibration - Thorium

CD-1 =	1.7 pCi/g
CD-8 =	12.9 pCi/g
CD-7 =	23.4 pCi/g

Drum	1 minute counts			Avg CPM
CD-1	1342	1392	1371	1368
CD-8	6036	6383	6090	6170
CD-7	11295	11203	10932	11143

Appendix J

Training Signature Sheet

TRAINING ATTENDANCE SHEET

Title: Basic Radiation Safety
Date: 12/17/10
Instructor: Glenn Huber / Steve Korndler
Format: Lecture Onsite

Print Name	Signature
Steve Korndler	[signature]
Glenn Huber	[signature]
Jeff Crone	[signature]
Brian Schmidt	[signature]
Dennis Hoilliard	[signature]